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# ENCEPHALITIS IN MAN CAUSED BY THE VIRUS OF EQUINE ENCEPHALOMYELITIS

## Report of a Case in an Adult

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EQUINE encephalomyelitis or Borna disease of horses and cattle has been known throughout Europe since 1813. In the western part of the United States a somewhat similar malady has been observed for over sixty years. During 1930 and 1931 a serious epidemic involving the central nervous system of horses and mules occurred in the San Joaquin Valley in California, and was shown by Meyer, Haring and Howitt[1] to be caused by a filterable virus. In a subsequent paper the same authors[2] reported that the virus differed from that recovered from the European type.

In 1935 a new focus of the disease appeared in New Jersey and Virginia. The virus recovered from this Eastern epidemic was shown by Ten Broeck and Merrill[3] to be immunologically distinct from the Western strain of Meyer and his coworkers. Guinea pigs immunized against the Western virus succumbed to injections of the Eastern virus.

Kelser[4, 5] has shown that the disease can be transmitted from one guinea pig to another by certain species of mosquitoes. Isolated cases of human beings dying of encephalitis in areas where the disease is prevalent have been mentioned by Meyer[6] and Da Fano and Ingleby.[7] That the virus of equine encephalomyelitis was the etiologic agent in these cases was not proved by immunological experiments.

During the summer of 1938 an epidemic of equine encephalomyelitis occurred throughout various sections of New England, principally in Rhode Island and Massachusetts. Fothergill, Dingle, Farber and Connerley[8] reported a case in a seven-year-old boy who died of a disease affecting the central nervous system. The virus which was recovered from the brain of the child was shown by immunological experiments to be identical with that found in the Eastern type of equine encephalomyelitis. This, therefore, is the first case of this disease in a human being to be thus proved.

Later in 1938 Wesselhoeft, Smith and Branch[9] succeeded in isolating the virus of the Eastern strain of equine encephalomyelitis from the brains of 4 children. Meyer[6] and Wesselhoeft, Smith and Branch[9] have reported adult cases without immunological confirmation. Eklund and Blumstein[10] reported 6 cases of encephalitis in farmers in the Middle West where equine encephalomyelitis was prevalent. Blood serum from 1 of these men was capable of neutralizing the virus of the Western strain of equine encephalomyelitis.

In none of these adult cases was the virus of the disease recovered and proved by immunological experiments. For this reason, and because of the rarity of the disease in man, we feel justified in reporting the following case.

### CASE REPORT

F. K. (Case 42909), a 55-year-old farmer, was admitted to the Truesdale Hospital on September 14, 1938. He was seen at his home by one of us (J. C. McA.) in consultation with Dr. Clarence E. Burt, of New Bedford. The patient had been perfectly well until noontime of the day previous to his admission to the hospital, when he complained of rather severe pain in the midfrontal region. Throughout the afternoon his discomfort had become more acute and the pain had extended more diffusely over the frontal area. On examination by Dr. Burt that evening he appeared seriously ill and had a moderately elevated temperature. During the night his temperature rose slightly and he became progressively more resistant and uncooperative, refusing to remain in bed. During the latter part of the night he had a generalized convulsion which lasted only a few minutes. A similar convulsion occurred the following morning. From this time on he became rapidly less responsive and less reasonable. By noontime on September 14 he was comatose and showed no signs

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of response except when disturbed by physical examination. No nausea or vomiting occurred at any time. He was admitted to the hospital in the afternoon.

Close questioning of relatives revealed nothing of importance in his past or familial history.

Although encephalomyelitis among horses had been frequent in this section of Massachusetts during the late summer of 1938, the only case known to have existed near the patient's residence occurred on a farm a half mile distant, shortly before the onset of his illness.

Physical examination on admission revealed a comatose man. His face was somewhat flushed and the skin was warm but not unusually moist. The rectal temperature was 103.8°F. The patient showed very little response to stimulation, and whenever an attempt was made to arouse him he became excessively irritable and resistant. At times he muttered incoherently and made repeated attempts to get out of bed. Respirations were rather deep but regular, the rate being 26.

Examination of the head and scalp was negative. The pupils were normal in size, equal and regular, and reacted somewhat sluggishly to light. There was no discernible muscle imbalance. Examination of the fundi was difficult, the only abnormality noted being a moderate engorgement of the veins. The ears, nose and throat revealed no abnormalities. There was no palpable cervical lymphadenopathy. The thyroid gland was not enlarged. There was a moderate degree of rigidity of the neck, but the Kernig and Brudzinski signs were not elicited. The lungs and chest were normal. The heart showed a regular rhythm and a rate of 88. No enlargement was noted on percussion; the sounds were of good quality and no murmurs were heard. The blood pressure was 105/60. Except for a moderate degree of gaseous distention, examination of the abdomen was negative.

The motor power of the extremities appeared to be normal, as evidenced by movements in response to stimulation. There were no deformities or developmental defects. There was no evidence of atrophy of any muscle group. No fibrillary tremors were noted. The deep reflexes were obtained only with considerable difficulty, the impression being that they were greatly diminished. No Hoffmann sign was elicited in either hand. The plantar reflexes seemed to vary. On one occasion a very suggestive Babinski was noted in the right foot. Subsequently a positive bilateral Babinski was recorded, but a few hours later no response to plantar stroking could be elicited with either foot.

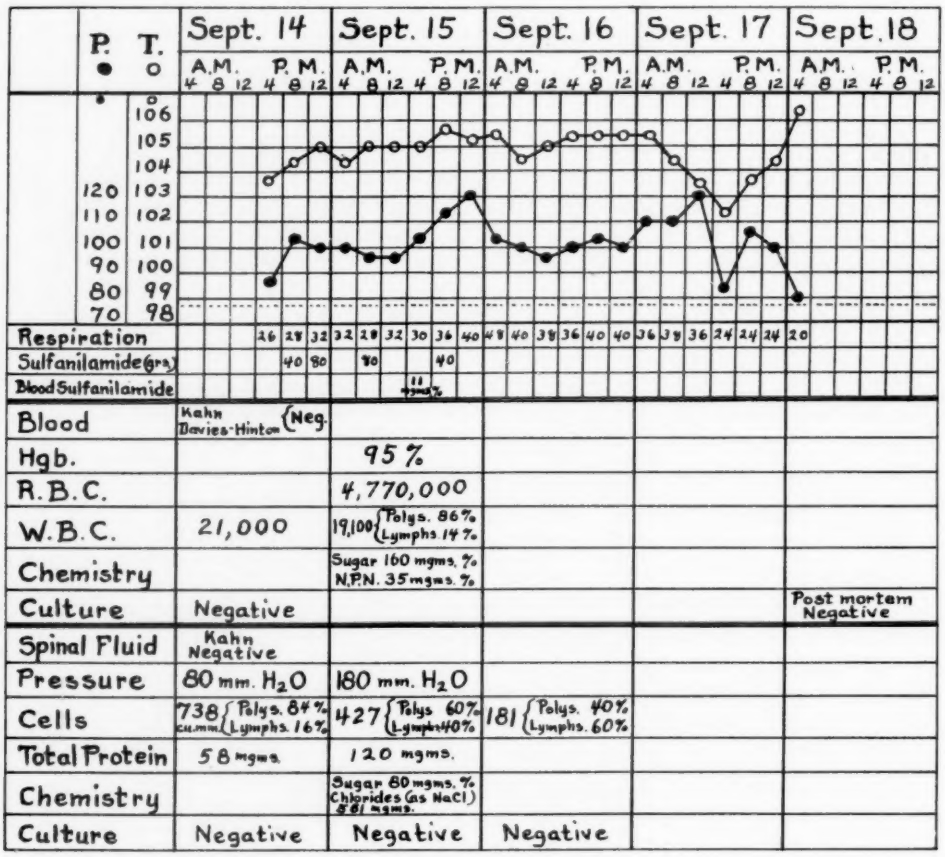


CHART 1.

The clinical impression at this time was that the patient was suffering from an acute encephalitis.

The results of laboratory examinations are recorded in Chart 1. After preliminary laboratory examinations we felt more certain that we were dealing with some form of encephalitis, rather than with an infection involving the central nervous system caused by any of the ordinary pathogenic bacteria.

The treatment instituted was empirical and symptomatic. Although we saw no specific indications for its use, we believed that we had nothing which offered more hope than the administration of sulfanilamide. An initial

dose of 500 cc. of 0.8 per cent solution of this drug in normal saline solution was given subcutaneously. Since there was no untoward reaction, a liter of the solution in the same concentration was administered similarly after a 3-hour interval. This was repeated the following morning, so that during the first 24 hours of his hospitalization he received a total dose of 200 gr. of sulfanilamide. At this time the blood concentration of sulfanilamide was 11 mg. per 100 cc. The dosage of sulfanilamide was later reduced so as to maintain as nearly as possible a therapeutically effective level in the blood stream.

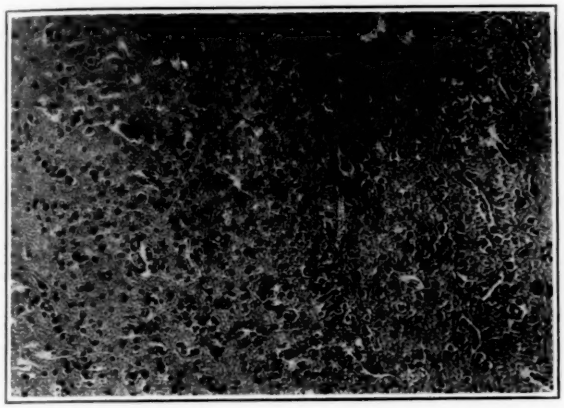

FIGURE 1. *Low-Power Photograph of Section of Cerebrum. Note the increased cellularity consisting predominantly of polymorphonuclear leukocytes.*

During the first 24 hours in the hospital the patient had eight generalized convulsions, occurring at approximately 2½ hour intervals and lasting 3 or 4 minutes. It was found necessary to give sodium luminal intramuscularly at various intervals in order to allay restlessness. Otherwise the general condition remained unchanged. There was a moderate degree of cyanosis, which was attributed to the effect of the sulfanilamide, but no other toxic evidence of the drug was observed. The respirations, however, began to show some irregularity resembling the Cheyne–Stokes type. It is possibly worthy of note that after the first 24 hours no further convulsions occurred and the patient's restlessness subsided.

On September 16 his condition became worse. Respirations were more labored and were definitely of the Cheyne–Stokes type. The pulse, however, remained of good quality, considering the degree of elevation of temperature. The patient began to perspire freely although his skin remained warm.

During the morning of September 17, for the first time the pulse began to show signs of change in quality, so much so that intravenous stimulants were given on two different occasions. Signs of bronchial and pulmonary congestion also developed. All medication was discontinued at this time. The temperature dropped rather abruptly to 102.4°F. rectally during the afternoon, but gradually rose during the afternoon and continued to do so throughout the night. The patient expired September 18 at 5 a. m., 5 days after the onset of the initial symptoms.

*Autopsy Findings.* The essential feature of the examination performed 4 hours after death was an acute diffuse encephalitis. The brain weighed 1370 gm. The pia arachnoid was clear and translucent and showed no gross evidence of exudate. The vessels, however, were markedly engorged. The convolutions were flattened and the sulci narrowed, especially over the parietal regions. The cut surface revealed a marked congestion of all the small vessels, most prominent in the white matter. The ventricles were not dilated and the cerebrospinal fluid appeared clear. The vessels of the pons, medulla and cerebellum on cut section showed less engorgement than did those of the cerebrum.

The right lung weighed 770 gm., the left 500 gm. There was a moderate degree of pulmonary congestion and edema. The bronchioles contained some mucopurulent exudate, but there was no gross evidence of pneumonia.

Microscopically, there was a pronounced degree of neuronophagia throughout the cerebrum and a diffuse scattering of polymorphonuclear leukocytes and microglia. Many foci of polymorphonuclear leukocytes and monocytes were seen (Fig. 1). Other areas suggestive of edema or early ischemic necrosis were not infrequent. The vessels were congested; many contained thrombi, some of a hyaline nature, others fibrinous. Around many of the vessels there were accumulations of monocytes and polymorphonuclear leukocytes (Fig. 2). This type of reaction was also present to a slight degree in the pia arachnoid.

The spinal cord was not examined.

Except for pulmonary congestion, the other organs were essentially negative.

Portions of the brain were preserved in 50 per cent glycerin and delivered to Dr. LeRoy D. Fothergill at the Harvard Medical School. He was able to isolate a virus from this tissue which by immunological experiments proved to be that of the Eastern type of equine encephalomyelitis.

FIGURE 2. *High-Power Photograph of Vessel in Cortex. Note the perivascular infiltration and the polymorphonuclear leukocytes and larger cells, which are monocytes. The lumen contains a so-called "hyaline thrombus."*

## COMMENT

The clinical course in this case had certain features which particularly impressed us. The onset of symptoms was abrupt and the disease ran a fulminating course to a fatal termination. Generalized convulsions were a prominent feature during the first thirty-six hours of the disease, but

at no time were any neurological signs observed suggesting that some area in the central nervous system was predominantly involved.

Certain laboratory studies, many of which parallel previously reported findings, deserve particular mention. The leukocyte count was markedly elevated, with an absolute increase in polymorphonuclears. The cell count of the spinal fluid was increased, and at least in the initial stage was characterized by a marked preponderance of polymorphonuclear leukocytes, which is not the usual finding in other types of encephalitis. Later in the course of the disease we observed a progressive decrease in the total number of cells, coincident with a gradual shift to a predominance of lymphocytes. The glucose concentration, as well as the chloride content, was normal. The total protein of the cerebrospinal fluid was markedly increased. Cultures of the fluid aerobically and under partial oxygen tension consistently showed no growth.

The microscopic lesions which predominated in this case were vascular congestion with thrombosis, perivascular infiltration, focal collections of polymorphonuclear leukocytes, foci of early ischemic necrosis and neuronophagia. This picture is fairly characteristic, resembling only that seen in early cases of poliomyelitis and, to some extent, in encephalitis of the St. Louis type. In each, the brains show a very acute reaction. In the St. Louis epidemic the infiltrating cells were usually lymphocytes or monocytes with an occasional polymorphonuclear leukocyte. In the present case, on the contrary, the infiltration was predominantly by polymorphonuclear neutrophils.

This general picture of polymorphonuclear predominance was even more striking in the sections taken from brains of children and horses dying of equine encephalomyelitis, which we were permitted to study through the courtesy of Dr. Sidney Farber of the Children's Hospital, Boston. As we have stated, our own case exhibited these characteristics to a lesser degree, which we suggest may be accounted for by the age of the individual and the longer course of the disease as compared with that in most of the other cases studied.

In our therapeutic efforts we call attention to only one observation. Sulfanilamide was administered in a dosage sufficient to obtain a blood concentration considered to be in an effective range for those infections in which the drug seems most beneficial. We failed to observe any benefit derived from its use in this case.

## SUMMARY

A case of encephalitis in an adult from which the etiologic agent was isolated and proved to be identical with that of the virus of the Eastern type of equine encephalomyelitis is presented.

We believe that this is the first reported case in a human adult proved in this manner.

We are indebted to Dr. LeRoy D. Fothergill, Department of Bacteriology and Immunology, Harvard Medical School, for his work in proving the identity of the virus in this case. Without his aid, a complete report would have been impossible.

151 Rock Street.

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# GONOCOCCAL ENDOCARDITIS, WITH RECOVERY AFTER SULFAPYRIDINE*

## Report of a Case

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BACTERIAL endocarditis due to the gonococcus is a serious and usually fatal disease. The important aspects of this subject have been reviewed in the recent literature.[1-3] Recovery has followed varying types of therapy, including fever therapy[2] and sulfanilamide.[4] The effectiveness of sulfapyridine§ in gonococcal[5-11] and streptococcal[12] infections seemed to warrant a therapeutic trial of this new sulfanilamide derivative in a recently observed case of bacterial endocarditis, in which a gonococcus and a non-hemolytic anaerobic streptococcus had been grown from the blood. Previous treatment with sulfanilamide had been ineffective.

### CASE REPORT

Mrs. S. C., a 24-year-old, white housewife, was admitted to Duke Hospital on September 25, 1938, complaining of fever with chills for about 4 months. Her family and marital histories were noncontributory. Her past health had always been good. Detailed inquiry revealed only the usual childhood diseases, malaria at 15, infrequent head colds, sore throats with referred pain to the right ear, and mild constipation. On the night of July 5, 1938, during the 8th month of her initial and normal pregnancy, the present illness began abruptly, when the patient was awakened by a chill and high fever. The next day she developed painful, swollen knee joints, which were followed by similar involvement of the toes of both feet and the 4th and 5th fingers of the right hand. Within 2 days all the affected joints had subsided except the left knee. Daily chills with high fever continued, and on July 14 the patient was admitted to a nearby hospital, where aspiration of the left knee revealed purulent fluid; no organisms were recovered. Blood cultures were negative and the gonococcal complement-fixation test was 4+. On July 26 the patient delivered spontaneously a normal child. There followed a temporary remission of chills and fever, and she was discharged feeling quite well except for swelling, stiffness and pain in the left knee. On August 9 chills and fever reappeared, requiring readmission to the hospital, where she remained for the next month and was given an adequate course of sulfanilamide and three blood transfusions, without significant therapeutic effect. She continued to have irregularly recurring chills, high fever and marked sweating, and lost slowly in weight until her admission to Duke Hospital on September 25. In the interim between chills she felt surprisingly well. The left knee joint had gradually become partially ankylosed.

Physical examination revealed a pallid, slender, poorly developed, undernourished woman who appeared acutely ill. The temperature was 103.6°F., the pulse was 116 and the respirations were 24. The skin was pale, warm and quite moist. The spine was straight and there was no generalized lymphadenopathy. The mucous membranes were pale. No petechiae were found after careful search. The eyes, ears, nose and throat were normal. The teeth were in good repair. The tonsils were small and embedded, but creamy material could be expressed from the crypts. There was hyperemia of the tonsillar pillars and posterior pharyngeal wall. Small cervical nodes were palpated bilaterally. The thyroid was not enlarged, and the cervical veins were not distended. The chest was slender but symmetrical; the lungs were clear except for a few fine crepitant rales heard after cough over a small area at the angle of the right scapula. The apex of the heart was in the 5th space 9 cm. from the midsternal line. The left border of dullness was 9.5 cm., and the right border 4.5 cm., from the midsternal line. At the apex the sounds were of normal intensity, but a faint protodiastolic gallop rhythm was present. Over the pulmonary area a soft systolic murmur and a high-pitched early diastolic murmur, transmitted beneath the sternum to the 3rd interspace, were heard. $P_2$ was greater than $A_2$, with no accentuation. The rhythm was regular; the pulses were synchronous; the artery walls were soft. The blood pressure was 100/70. The abdomen was normal; the spleen was not felt. Pelvic examination revealed only slight erosion of the cervix and a normal uterus. Rectal examination was not remarkable. The left knee showed limitation of motion to full flexion, but no other abnormalities. Neurological examination revealed no abnormality.

The hemoglobin was 9.3 gm. (60 per cent), the red-blood-cell count 3,050,000 and the white-cell count 10,500, with 78 per cent polymorphonuclear neutrophils, 1 per cent eosinophils, 7 per cent monocytes, and 14 per cent small lymphocytes. Repeated urinalyses showed only a few white-blood cells, and stools were normal. The sedimentation rate was 37 mm. per hour, corrected. A blood Wassermann test was negative. A gonococcal complement-fixation test was 4+ in all dilutions on two occasions. An electrocardiogram was entirely normal. A teleoroentgenogram showed a triangular area of consolidation in the midportion of the right lung, interpreted as an infarct. The heart was enlarged to the left and somewhat globular. The cardiac measurements were: maximum right 4 cm., maximum left 10.5 cm., total 14.5 cm.; the internal diameter of the chest was 24 cm. A roentgenokymogram showed normal pulsations. An x-ray film of the left knee revealed osteoporosis with rarefaction along the joint margins, interpreted as infectious arthritis. A cervical smear and culture and bladder cultures were negative for *Neisseria gonorrhoeae*.

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§Sulfapyridine is the name adopted by the Council on Pharmacy and Chemistry (*J. A. M. A.* 112:49, 1939) of the American Medical Association for the pyridine derivative of sulfanilamide, which has been called by various names, such as 2-(*p*-aminobenzenesulfonamide) pyridine, 2-(*p*-aminobenzenesulfanilamido)) pyridine, Dagenan, and M. and B. 693. This material for investigative purposes was kindly supplied to us under the name of 2-sulfanilamido-pyridine by the Calco Chemical Company, Incorporated, Bound Brook, New Jersey.

The patient was placed at strict bed rest and given a high caloric and high-vitamin diet, iron, liver and blood transfusions. During the first 5 hospital days she had daily chills, with sharp rises in temperature to 103.1°F., usually in the evening, accompanied by malaise and excessive perspiration. Five consecutive blood cultures, taken daily at the peaks of fever, were positive for both *N. gonorrhoeae* and non-hemolytic anaerobic streptococci. On the 6th day, sulfapyridine was begun in oral doses of 0.3 gm. every 6 hours for 2 days, then increased to 0.6 gm. for the next 12 days. The fever subsided on the 1st day of drug therapy; the white-cell count fell to 8700, with 64 per cent polymorphonuclears, and three consecutive blood cultures during the ensuing afebrile period were negative. Blood sulfapyridine levels ranged from 2.3 to 3.8 mg. per 100 cc. The patient was transfused three times during the afebrile period, and her hemoglobin increased to 11.3 gm. and the red-cell count to 3,520,000. On the 16th, 17th and 18th days the temperature rose to 103.1°F., with malaise and sweating but no chills. The white-cell count rose to 12,300, and a blood culture was positive for the anaerobic streptococcus but negative for *N. gonorrhoeae*. Sulfapyridine was increased to 0.9 gm. every 6 hours, and the temperature remained normal for 5 days. On the 24th day the temperature again rose, to 100.4°F., but without associated symptoms. The drug dose was increased to 5 gm. daily and continued at this level for the next 31 days. Blood sulfapyridine determinations varied from 4.0 to 7.3 mg. per 100 cc. on this dosage level. The patient remained afebrile and asymptomatic throughout the remainder of her hospital stay, felt perfectly well and gained in weight and strength, and was allowed to be up and around for 1 week before her discharge on the 63rd hospital day, November 27. After the fever abated, the heart resumed its normal size, the gallop rhythm disappeared, and the pulmonary diastolic murmur became faint. Repeated electrocardiograms while under drug therapy showed only flattening of the T waves in all leads. Several teleoroentgenograms of the chest showed gradual but complete clearing of the infarct and return of the heart shadow to normal. No ill effects from sulfapyridine were noted except minimal cyanosis and transitory nausea on doses of 5 gm. daily.

The blood culture became negative on the 23rd hospital day, and remained negative (four blood cultures taken at approximately weekly intervals). Following three additional blood transfusions the hemoglobin rose to 14.3 gm. and the red-cell count to 4,240,000, but fell steadily to 11.6 and 3,690,000 respectively at the time of discharge. This may have been due to prolonged administration of the drug (52 days).

Of considerable interest are the serial studies of antibodies, which were done at weekly intervals during the entire hospital stay. Opsonins and agglutinins for both organisms were present in low titer, and bacteriolysins were absent at entry. However, the gonococcal complement-fixation test was 4+ in all dilutions. Following the disappearance of the bacteremia, bacteriolysins appeared and, together with opsonins and agglutinins, increased to a very high titer at the time of discharge, the gonococcal complement-fixation test becoming negative.

The clinical diagnosis was bacterial endocarditis due to *N. gonorrhoeae* and a non-hemolytic anaerobic streptococcus, affecting the pulmonary valve, with pulmonary insufficiency and infarction of the lung.

The patient was re-examined on December 21, 3½ weeks after discharge. She had been perfectly well except for a cold with right pleural pain for several days, and had gained in weight. The lungs were clear; the heart was normal in size; the pulmonary diastolic murmur was barely audible but definitely present. A teleoroentgenogram and an electrocardiogram revealed no abnormalities. A blood culture was negative, and tests for immune bodies showed opsonins in very low titer, agglutinins and bacteriolysins unchanged from the previous high levels, and the complement-fixation test still negative.

The patient was seen again on April 6, 1939, 4 months after discharge, having been well except for rather frequent colds and sore throats and a right otitis media. The cardiac findings were unchanged except for slight increase in the intensity of the pulmonary diastolic murmur. A teleoroentgenogram was normal, and an electrocardiogram revealed a slight flattening of the T waves in Lead 1. Cultures of the blood were negative. Tests for immune bodies revealed opsonins unchanged, agglutinins reduced to low titer and bacteriolysins but slightly decreased from their former levels. A gonococcal complement-fixation test was negative.

## DISCUSSION

There is little doubt that this patient had bacterial endocarditis involving the pulmonary valve. The history of recurrent chills and pyrexia and the presence of septic fever, pulmonary insufficiency and leukocytosis were indicative of endocarditis; five consecutive positive blood cultures, together with x-ray evidence of pulmonary embolization, were considered diagnostic. Clinical recovery under therapy was evidenced by general improvement in the patient's condition, the subsidence of fever, leukocytosis and sedimentation rate, the regression of the heart lesion, the disappearance of the pulmonary infarct as disclosed by x-ray studies and the repeatedly negative blood cultures.

The occurrence of a mixed infection — gonococci and anaerobic streptococci, both of which were probably superimposed upon the pulmonary valve — is unusual. The astonishingly prompt response of the fever to sulfapyridine on the first day of drug therapy suggested an antipyretic effect. Of the two organisms the gonococcus proved the more vulnerable to chemotherapy, since it disappeared from the blood stream first. The optimal dosage of sulfapyridine and the duration of its administration for the successful treatment of bacterial endocarditis are not known. Because of recurring bouts of fever, indicating continued activity of the infection, the drug dosage, which was initially low to avoid possible toxic reactions, was gradually increased from 1.2 gm. to 5 gm. per day, given in divided doses at six-hour intervals so as to maintain a uniform blood concentration. This dosage level proved adequate for cure; the blood sulfapyridine concentration ranged between 4 and 7.3 mg. per 100 cc., and the only toxic symptoms, slight cyanosis and transient nausea, were inconsequential. The reappearance of anemia at the end of the hospital stay may have been due to prolonged administration of the drug.

Coincident with the disappearance of the bac-

teremia, immune bodies appeared and increased to high titer, and the gonococcal complement-fixation test, initially 4+, became negative. This inverse relation of immune bodies to complement-fixing antibodies is an important one. The appearance of the former in high titer and the disappearance of the latter, together with the subsidence of all clinical signs, are probably indicative of cure.

SUMMARY

A case of bacterial endocarditis due to the gonococcus and a nonhemolytic anaerobic streptococcus, superimposed upon the pulmonary valve, is reported. Recovery followed the oral administration of sulfapyridine.

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# AN ADDRESS ON THE OCCASION OF THE FIRST MEETING OF THE TUFTS COLLEGE MEDICAL SCHOOL COUNCIL*

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NEW YORK CITY

WHEN I was asked to address this group, I was reminded of a man who some years ago, in the afternoon of life, remarked to me that he felt certain that he would have been a better citizen and a more successful one had he possessed the ability to distinguish with certainty the difference between temptation and opportunity. That distinction is sometimes difficult.

I have chosen to regard this invitation as an opportunity because I happen to have some ideas and notions as to the rendering of good medical service in rural communities. What I have chosen to regard as an opportunity might easily be regarded as a temptation, if I were to attempt to depend too much for support of these ideas and notions upon such facts and statistics as are available concerning the practice of medicine in rural districts. Such facts and statistics are not necessarily entirely reliable, and they are capable of various interpretations on which one may easily be tripped up. To avoid the temptation and still seize the opportunity, I shall endeavor to confine my factual and statistical background to statements that I believe cannot be questioned, and to do it as briefly as possible.

*Held at the Joseph H. Pratt Diagnostic Hospital, Boston, May 10, 1939.
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It may be true that there is a shortage of physicians in rural districts in some parts of the United States. It is true, for example, that in 1931, according to the American Medical Association,[1] there were in Maine, New Hampshire and Vermont, respectively, 635, 367 and 341 physicians in general practice as compared with 4169 in Massachusetts; and making due allowance for population differences, the more rural northern states mentioned had fewer physicians per unit of population. In Vermont, a recent study[2] gives 461 practicing physicians in the state, which perhaps approaches adequacy so far as numbers are concerned, although, as I shall try to show later, there are factors of decided importance besides numbers. It is true also, according to a study by Weiskotten,[3] that of 3026 men who had graduated from medical school in 1925 and supplied information, 11 were practicing in Maine six years later, 5 in New Hampshire and 7 in Vermont. The same study shows that of 3418 men graduated in 1930 who had supplied information, there were 12, 16 and 10, respectively, practicing in those three states six years later. We know also, for example, that in 1920 only 17 per cent of Johns Hopkins graduates were practicing in towns of less than

twenty-five thousand population.[4] Therefore there is, I believe, some evidence that our rural areas are — or have been — somewhat less well supplied with physicians than are our larger towns and cities.

Such a statement, however, needs to be made with at least two reservations: first, in all probability some urban areas are oversupplied with physicians; second — and far more important — such conclusions and the studies on which they are based deal with numbers, or quantity, and in no sense with quality. It is, I think, relatively unimportant that a given area should have so many physicians per given unit of population. It is, on the other hand, extremely important that an area should have a number of competent physicians with modern training, adequate to meet the demand for good medical service. Statistical studies do not determine such facts with real accuracy. Certain studies have been made which throw some light on this particular matter, and to a limited extent, observation on the ground may confirm the resulting judgments. In one state with which I am reasonably familiar, the state health department made a study[5] in 1927 which showed that in the general rural areas, exclusive of a number of large urban districts, the average age of the practicing physicians was fifty-three, and that 29 per cent were over sixty; and a study of two hundred and eighty-three rural counties in forty-one states, made by Pusey[6] and published in 1926, showed the average age of physicians to be fifty-two and the average period in practice twenty-six years. The latter study stated that of 4410 physicians practicing in those counties, only 9 per cent had been graduated within the preceding ten years, and that no recent graduate had entered 35 per cent of those counties within that period. According to the Vermont study mentioned above, of the 461 practicing physicians in the state no less than 221 were over fifty-five.

Enough of statistics and studies; such as I have quoted provide perhaps conclusive proof of very little that is of value, but they do, I think, give indications of conditions which may to a considerable extent be confirmed by known facts and observation.

To illustrate: medical education today and twenty-five years ago are two very different things. It is obvious that physicians who received their training twenty-five or more years ago have not received a modern medical education. A few of them — men of determination, ambition and scholarly interest — have kept up to date reasonably well despite a busy practice and many difficulties. Yet when you find a rural area today with a preponderance of physicians well over fifty, it seems a fair inference that many, if not most, have dropped far behind, and are not equipped to practice as good medicine as the people might wish and be entitled to receive; and this inference has been confirmed by personal observation and contacts, in some rural districts at least, by the medical staff of the foundation with which I am associated, and is a fact well known to the faculties of certain medical schools.

Admitting, then, that there are many variations between different districts, and that anything I have said or that can be said does not necessarily prove that any particular condition exists everywhere, it remains, I believe, a fact that something needs to be done — and for that matter something is being done in a number of places, and the work in Maine of Tufts College Medical School is an encouraging experiment along this line.

In my judgment, there are several requisites to the solution of the problem of securing really good medical practice in rural areas. Those that occur to me are: first, to get well-trained young medical men to undertake practice in such areas; second, to provide natural and reasonable — not artificial — incentives to keep them there; and third, to include in the incentives, by all means, the facilities which are necessary to the practice of good medicine, and those which make it possible and feasible for a physician to keep abreast of the progress of his profession — a difficult thing at best, which will not be done, except by the unusual man, without such facilities.

It is because Tufts College Medical School is making this sort of thing possible, particularly in Maine, that I am interested in the school. It is pre-eminently, as its record shows, a New England institution. It trains men for practice in New England; it has, with the co-operation of the Bingham Fund Associates, established in Maine certain facilities and certain opportunities which should lead a reasonable percentage of young medical men to think that country practice in this state is worth while.

I assume that most of you are familiar with the methods followed in this undertaking. To my mind the arrangements, already in part established, whereby small local community hospitals are affiliated with certain regional hospitals, with the Joseph H. Pratt Diagnostic Hospital as a center; the fact that through this arrangement the smaller institutions, and the physicians connected with them, have the opportunity for consultant pathological service and for expert assistance in x-ray interpretation; the fact that any physician, whether connected with a hospital or not, can secure assistance in the diag-

nosis of difficult conditions and obtain whatever consultation, with outstanding authorities, may be indicated; the fact that practicing physicians throughout the state have the continuing opportunity for postgraduate study of internal medicine, of pediatrics, of obstetrics — these and similar facts mean that the physician's opportunity to improve his own standard of service is afforded through the facilities for learning the latest improvements in medical knowledge and practice, no matter how isolated otherwise the physician may be. To the entire plan, I believe, may be accurately applied Dr. Proger's words, in commenting on a particular course for postgraduate training: that it is "not an isolated experience in the physician's life but the beginning of a permanent opportunity for better work."

I have by no means mentioned all the opportunities that are tied into this general plan, nor is it necessary that I should; but you will have noticed that I have repeated and stressed the word "opportunity"; I believe it to be of utmost importance. Medical men can no more than others be forced to drink from the fountain of knowledge. Insofar as the plan is worked out along natural lines, through making it possible for the local hospital and the young country doctor to attach themselves by a mutual and entirely voluntary affiliation to the more effective, larger and better-equipped institution, and to the more experienced and highly trained medical authority, there will be naturally woven a fabric of good medicine about this medical center here in Boston, through which a great service can be rendered. The plan will demonstrate, and to some extent has already demonstrated, not only that good medicine is possible in the country but that it may be both soul-satisfying and attractive to the young physician. Organizations and institutions which are formed to render a service to mankind all too frequently become an end in themselves; then service becomes relegated to the background and is largely forgotten. If the Tufts program should, as time passes, so develop as to become an end in itself and neglect the service which is its raison d'être and this be interpreted as a plan for the aggrandizement of Tufts College Medical School and for the potential control of New England medicine, it will quite properly fail. Of that I see no sign; nor is there any reason why it should so develop. I hope to see Tufts greatly extend what has been so well begun. The evolving plan is, I believe, more constructive in its implications and potentialities than any artificial system for the distribution of medical care. What we need is medical care of high quality and a natural means of distributing it and of keeping it distributed. To that end Tufts is encouraging a valuable experiment, and one from which I anticipate a considerable lesson may be learned.

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## CLINICAL NOTE

# MODIFICATION OF KAUFMAN SYRINGE FOR INTRAVENOUS WORK IN INFANCY

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ONE of the major factors in the improvement in mortality statistics in infancy and early childhood is the increased use of the intravenous route for administering water, electrolytes, glucose and blood. Quite aside from mortality statistics, its value in alleviating suffering in many diseases and making smoother the convalescence following operation is many times worth the effort involved. The problem of preparation and preservation of the various solutions has been greatly simplified by investigators working in collaboration with commercial drug houses.

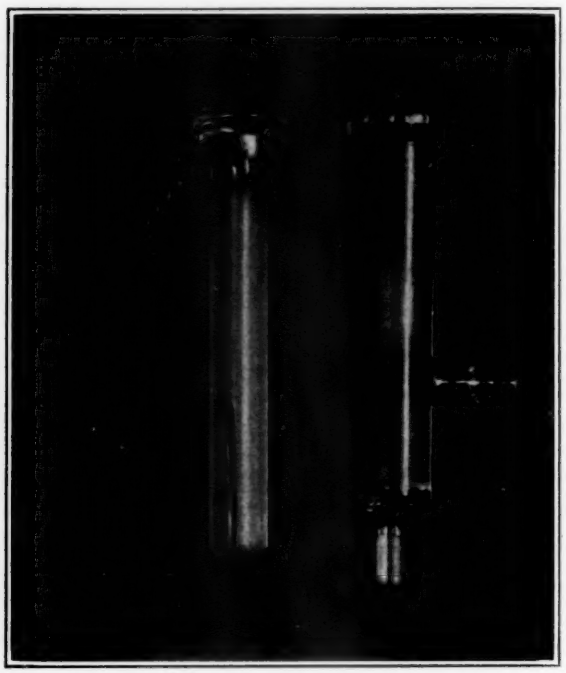

FIGURE 1. *Photograph Showing Groove in Plunger Which Here Is a Little Longer than Is Necessary.*

A second problem, that of successful venepuncture, must be solved by the individual operator, who will use, if it is available, equipment to which he has become accustomed and which gives him confidence. This factor is an extremely important one.

One of the most widely used pieces of apparatus in the intravenous administration of fluids is the Kaufman side-arm syringe. A few years ago, this syringe was modified by placing the side arm nearer the distal end of the syringe than it was in the original. This proved to be a distinct advantage, especially in infants where the scalp veins are usually used. But even with this modification the amount of blood which must be withdrawn before the fluid can start running is relatively large, and in the dehydrated, debilitated, acutely ill infant this may necessitate repeated venepunctures and, hence, damage to veins that may be valuable for later use.

To obviate this difficulty, the Kaufman syringe has been further modified by grinding a narrow, shallow groove in that portion of the plunger which extends from the level of the side arm to the distal end.† With this groove turned away from the lumen of the side arm, the needle is inserted into the vein and the plunger retracted. When the drop or two of blood, which ensures that the needle is in the vein, has been drawn into the syringe, the plunger is rotated so that the groove is opposite (communicates with) the lumen of the side arm. The solution to be administered then flows along this groove into the distal portion of the syringe, and permits the further withdrawal of the plunger beyond the level of the side arm and a continued free flow of fluid.

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# REPORT ON MEDICAL PROGRESS

## DIABETES MELLITUS

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### INCIDENCE

EVIDENTLY in this vicinity we have little realization of the struggles of diabetic patients elsewhere. Whereas our coma mortality for cases both in and outside the hospital has fallen in recent years to 6 per cent, the duration of the disease has risen to eleven years, and the mortality attributable to a complicating tuberculosis, despite the longer period of exposure, has remained constant around 5 per cent. Thus Ponteva[2] in Finland reports statistically on 86 patients treated before and 645 patients treated since the introduction of insulin in October, 1923. Mortality in the clinic in Helsinki fell from 19 per cent prior to 1923 to 7 per cent since that time, and the incidence of coma in the total mortality fell from 81 to 27 per cent. The ratio of the number of diabetic cases to the total cases in the clinic rose from 2.1 to 7.9 per cent, but the duration of hospitalization dropped from seven to four weeks. The mortality among the patients, subsequent to discharge and up to September 1, 1936, was 46 per cent. Pulmonary tuberculosis caused 19 per cent of the total deaths, and was thus a major factor in raising mortality rates and shortening the lives of patients. The duration of diabetes rose with age. It was three years among young people, three years and ten months in middle age, and five years and one month in old age. In contrast, the duration of life of patients recently consulting the reviewers had already reached on the average five years prior to their first visit, indirect evidence, by the way, of the excellent type of treatment afforded diabetic subjects by the general practitioner. This figure of five years also represents slightly more than our total longevity of diabetic patients between 1898 and 1914.

According to Ponteva, mortality was highest in rural districts and lowest in the cities, and evidently depended on the financial circumstances and education of the patients, but even among the educated the average total duration of the disease was only five years and four months. Lack of vegetables was widespread, only 10 per cent of the workmen who reported having had a sufficient quantity. Practically all patients requiring insulin received it, although 34 per cent were assisted financially.

Kesterman and Schuwicht[3] report 754 diabetic patients treated within the last decade at the University of Marburg. The mortality was 7 per cent. Of the 52 deaths, 21 occurred in coma. The duration of the disease of those dying in the hospital was about four years, the average age being fifty-three, as compared with sixty-three years for 981 deaths from 1930 to 1935 in the above-cited American statistics.[1] Among 528 diabetic patients discharged and followed, 29.5 per cent died. The most frequent cause of death was circulatory insufficiency, and the second most frequent was diabetic coma. Of the 372 survivors, 70 per cent were completely symptom free and able to work, and 10 per cent were completely incapacitated.

### TRAUMA

A study of the effect of trauma in the etiology of diabetes has been made by Thomsen.[4] Suffice it to say that his conclusions support the theory that trauma can cause the disease only by producing injury to the pancreas so extensive that it is practically incompatible with life.

In this connection, Adlersberg and Dolger[5] have described the medicolegal possibilities arising from hypoglycemia subsequent to the use of insulin. Undoubtedly problems exist, but the reviewers believe that such complications are far less frequent than one might infer from a perusal of the article. However, it is absolutely incumbent upon diabetic patients to avoid reactions. Those taking insulin should never drive an automobile without taking carbohydrate food every two hours.

### WORKING CAPACITY OF DIABETIC PATIENTS

The long duration of the lives of diabetic patients today brings up the question of their ability to support themselves. The results of a survey of a group of 100 consecutive patients in England made by Lawrence and Madders[6] showed that

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with an average duration of five years of employment no time was lost by 39 per cent; time was lost only at initial stabilization by 38 per cent, for restabilization by 8 per cent and through diabetic illnesses by 15 per cent.

Direct statistical evidence of this nature has not appeared in the United States, but figures bearing on the subject were collected by the reviewers and presented at the St. Louis meeting of the American Medical Association in the form of charts. Full-time capacity was reported by 63 per cent of the men and by 46 per cent of the women in a group of 653 patients between twenty and sixty-five; two-thirds capacity was reported by 27 per cent of the men and 34 per cent of the women.

## PHYSIOLOGY

*Production of permanent diabetes with pituitary extract.* The outstanding work of Young,[7] in which permanent diabetes was produced in normal dogs by the daily intraperitoneal injection of crude saline extracts of the anterior lobes of beef pituitaries, has been confirmed by other investigators, among whom are Campbell, Keenan and Best[8] at the University of Toronto and Dohan and Lukens[9] at the University of Pennsylvania. The Toronto workers found that in 2 of 3 dogs with experimental pituitary diabetes, total pancreatectomy produced little or no aggravation of the diabetic state. The total insulin content of the pancreas in each of these 3 animals was less than 2 units, and 1 contained no detectable amount of insulin. (The insulin content of the pancreas of normal dogs of comparable weight averages about 60 units.) In all 3 animals widespread destruction of islet tissue was found, and no normal islets were found in the dog which had the most severe diabetes. Similar degenerative changes have been described by Richardson and Young.[10] Thus is attention, temporarily diverted, again focused on the pancreas as the seat of the disorder in diabetes.

Dohan and Lukens studied the urinary glucose and nitrogen during fasting in dogs made diabetic by anterior pituitary extract. The urine was sugar-free in some animals, but in others there was glycosuria of varying degree, occasionally reaching the level seen in depancreatized dogs. The amount of nitrogen in the urine varied from levels seen in normal to those seen in depancreatized animals. In studies of the respiratory metabolism, the basal oxygen consumption was found to be normal or slightly increased. There was a marked rise in oxygen consumption after the feeding of meat or after glucose and insulin. The respiratory quotient rose little or none after glucose.

In his lecture, as yet unpublished in full,* given on April 20, 1939, at the Harvard Medical School, Young reviewed his findings regarding the pituitary diabetic dogs. He finds that a daily intraperitoneal injection of fresh, crude, anterior pituitary extracts for eleven to twenty-six days causes diabetes, which then remains permanent, despite discontinuance of the injections. In order for diabetes to be produced, the amount of extract injected must be regularly increased, starting with the extract made from 5 or 10 gm. of anterior pituitary substance and increasing the amount every three or four days until extracts from 20 to 25 gm. are being injected daily. The glands and extracts must be kept constantly as close to 0°C. as practicable. Once diabetes has developed, the amount of insulin required for control of the diabetes is, in general, a little larger than that needed for depancreatized dogs, but there is this great difference: if insulin is gradually withdrawn from the pituitary diabetic dogs, they will live for long periods; with gradual withdrawal of insulin from depancreatized animals, however, there soon comes a time when acidosis and coma intervene and death occurs.

Young has been unable to produce diabetes of this type in animals of any species other than the dog. In rabbits a state of insensitivity to insulin may be set up. In rats hypertrophy rather than degeneration of the islet tissue is seen; this proliferation of the islet cells may precede, in the dog, the exhaustive or degenerative changes which accompany the onset of permanent diabetes. Dohan and Lukens[9] report that pituitary diabetes can be produced in the cat by the removal of part of the pancreas before treatment with anterior pituitary extract, and Long[11] and his co-workers at Yale University have had a similar experience with partially depancreatized rats.

*Relation of the pituitary and adrenal glands to carbohydrate metabolism.* Soskin, Levine and Lehmann,[12] using eviscerated animals, obtained results which they interpret as indicating that the apparent increased disappearance of sugar in fasting hypophysectomized animals is due, not to increased utilization in the tissues, but to a markedly diminished glyconeogenesis in the liver which allows a depletion of the carbohydrate stores, in spite of a diminished utilization. They believe that the so-called "glycostatic" effect of pituitary extracts is due to an increased formation of carbohydrate in excess of the amount being utilized, which results in an increase in the carbohydrate stores.

Marshak, Fernald and Marble[13] found that fasting for forty-eight, seventy-two and ninety-six hours caused no greater decrease in the blood sugar

*Abstracted in the *New England Journal of Medicine* (221:81, 1939).

of hereditary dwarf mice — which lack the acidophil cells of the anterior lobe of the pituitary gland — than in that of normal mice. Assuming that the hypophysis secretes a hormone which contributes to the maintenance of a normal glycemic level, their results demonstrate that the presence of the acidophil cells is not essential for this function.

Chambers, Sweet, Chandler and Lichtman,[14] working with depancreatized dogs, found the same low level of carbohydrate metabolism after adrenalectomy as after hypophysectomy. With both types of doubly operated animals the basal respiratory quotient was low (0.75), and rose significantly after the administration of glucose in only a small percentage of the animals (one third of the hypophysectomized and one sixth of the adrenalectomized animals).

*Effect on pancreas of continuous intravenous injections of dextrose.* Woerner,[15] working in the Department of Anatomy at the University of Chicago, found that as the result of continuous intravenous injections of dextrose into normal guinea pigs for as long as twenty-eight days, at first the beta granules in the islands might be exhausted following which there might be an increase in island tissue and in the number of beta cells. After this there might be a third stage in which degenerative changes occurred in both alpha and beta cells in the form of hydropic degeneration, and also in the acinar cells in the form of swollen and fatty mitochondria.

*Action of extracts of alpha cells of pancreatic islets.* Bensley and Woerner[16] prepared from guinea-pig pancreases aqueous extracts which they regard as alpha-cell extracts. When such an extract was injected intravenously into a guinea pig for twenty-four hours, there occurred an increase in liver fat, a decrease in liver glycogen and a loading of the alpha cells of the islands of Langerhans with granules. When dextrose was injected along with the alpha-cell extract, the fat was removed from the liver, the liver cells stored glycogen, the beta cells appeared actively secreting and somewhat exhausted, but the alpha cells contained many granules. Bensley and Woerner suggest that the alpha cells of the pancreatic islets secrete a substance which is concerned with fat metabolism, and speculate as to the identity of this secretion and the substance which Dragstedt and co-workers[17] have described under the name of "lipocaiac."

## INSULIN

In 1938 appeared the monograph by Jensen[18] entitled *Insulin: Its chemistry and physiology.* In this volume of 252 pages the important investigations up to 1938 are summarized. It is a valuable reference book for those interested in diabetes and carbohydrate metabolism.

*Crystalline insulin.* Although the crystalline type of insulin was released for general sale in August, 1938, there has been much disagreement as to its rapidity of action and duration of effect. This insulin is a clear solution, acid in reaction, and dispensed under the name of "insulin specially prepared as solution of zinc-insulin crystals." Studies carried out recently by Marble and Vartiaïnen[19] have shown that a solution of zinc-insulin crystals on the average exerts a slightly greater hypoglycemic effect and a slightly more prolonged action than does insulin made from amorphous material. Both insulins, however, produce a rapid fall in blood sugar and must be regarded as preparations with rapid action and short duration of effect. The differences between the effect of regular insulin and of zinc-insulin crystals, particularly as seen in the day-by-day maintenance of diabetic patients, are of relatively minor importance. Protamine-zinc insulin remains the slowly acting, long-lasting insulin of choice.

*Effect of diet on the insulin content of the pancreas.* Using groups of 10 normal rats, Haist, Ridout and Best[20] carried out investigations intended to demonstrate the influence, if any, of dietary changes on the insulin content of the pancreas. Under normal conditions the pancreatic tissue from 10 rats yields from 20 to 30 units of insulin. For the assay of insulin content, mice are employed, using from 200 to 300 animals for each sample of insulin-containing extract. Using these procedures, it has been found that starvation produces a very definite decrease in the insulin content of the pancreas. Diets very rich in fat cause a marked diminution in the insulin content; those rich in carbohydrate do not lead to a decrease. The results published so far are of a preliminary nature, and the outcome of the studies now in progress will be awaited with interest because of possible clinical applications.

## TUBERCULOSIS

The 19 per cent mortality from tuberculosis among diabetic patients in Finland has already been cited.[2] Himsworth,[21] in an analysis of 230 consecutive diabetic patients on their first hospital visit, found 15 cases of tuberculosis, of which 13 could be diagnosed only by x-ray examination. He states that pulmonary tuberculosis and true diabetic cataracts are particularly prone to occur together in young patients whose diabetes is not well controlled. In a recent summary of 364 dia-

betic cases by Root and Bloor,[22] the outstanding fact still is the great susceptibility to pulmonary tuberculosis of diabetic children, exceeding by at least twelve times the frequency observed among pupils in Massachusetts grammar and high schools. Actually, Joslin[23] found that among 104 children who had had diabetes ten years or more, 40 per cent of the deaths were due to tuberculosis. Analysis of the lipoids of lung tissue of 26 diabetic patients at autopsy reported by Root and Bloor showed a range for cholesterol of 0.23 to 0.54 per cent. Of the 26 diabetic patients, 15 had cholesterol values of over 0.35 per cent, and it was in this group that 6 of the patients with quiescent, apical tuberculosis, were found. A striking fact, however, was that many patients showed a low value for phospholipid.

### SURGERY

The value of a continued and specialized interest in the diabetic problem by a single group is repeatedly illustrated, as in the summary of two years of diabetic surgery by Rabinovitz and Weisman[24] and the report by John.[25] In John's series, including 983 major operations and 290 minor operations, the mortality was 10 per cent for the former and 1.7 per cent for the latter, or an average of 5.8 per cent. He stresses the necessity of medical attention during diabetic surgery, including the use of insulin before and after operation, a diet suitably arranged, and the liberal use of intravenous injections of physiological saline solution. The water metabolism in diabetes and the many-sided functions of the liver are emphasized. Hepatic glycogen must be conserved, since it represents that portion of body glycogen most easily available for use by the body and also most easily exhausted. Thus, one of the great problems in surgery requiring ether anesthesia is how to provide so sufficient a store of glycogen in the liver that the patient may withstand the depleting effects of an ether anesthesia, which may be more prolonged than was originally anticipated.

The importance of gall-bladder disease as a cause of diabetes has probably been overestimated. Nevertheless, when infection is present in the gall bladder the diabetes may be aggravated and be correspondingly improved by surgical treatment, as John points out. Leriche and Jung[26] report experiments on animals and observation of a human case designed to show whether constant and prolonged drainage of the gall bladder would affect the islands of Langerhans and clinical diabetes. In 17 adult dogs ligation of the common duct and constant drainage of the gall bladder for periods varying from six days to four months resulted, in a majority of the dogs, in increased density of the islands of Langerhans, the islets presenting a pronounced vascular congestion. The patient was a woman of thirty-one with recent diabetes and vague pain in the abdomen. Treatment with insulin, from 80 to 100 units a day, failed to control the diabetes. In April, 1937, the gall bladder was opened, and continuous drainage was instituted, which resulted in the removal of about 300 cc. of bile per day. From April to June the patient continued sugar-free without insulin. In July, 1937, she seemed completely cured, having gained in weight and feeling entirely well. The remarkable improvement justified removing the drain. However, shortly the sugar returned and in three months the patient was requiring 90 units of insulin. Leriche and Jung concluded that surgical treatment of diabetes should still be considered, possibly drainage by attaching the gall bladder to the jejunum.

The use of the negative-pressure boot at first seemed to promise a means of stimulating the circulation. It is contraindicated in John's[25] experience, however, as well as in McKittrick's,[27] in patients with moist gangrene or spreading infection, lymphangitis, thrombophlebitis, varicose veins or edema.

The question of whether diabetic gangrene is increasing or diminishing under the influence of improvements in diabetic treatment is difficult to answer. The increasing length of duration of diabetic life and the great increase in hospital treatment must be considered in the analysis, as is especially well shown in the article of Hunter,[28] who cites certain statistics from King's College Hospital, London. Thus, between 1919 and 1923 the total number of diabetic admissions to that hospital was 68, with 2 cases of gangrene. Between 1933 and 1937, on the other hand, the number was 730, with 39 cases of gangrene.

Duncan[29] summarizes the treatment and course of 136 cases of diabetes with acute complications. In 13 of the 23 deaths, diabetes was considered the contributory cause. It is difficult to agree with Duncan's general statement that diabetes of itself is not a fatal disease. It is true that the final illness is usually a complicated one, but in a great majority of cases it is impossible to say that the diabetes itself has not contributed either directly or indirectly to the death.

### JUVENILE DIABETES

The "free" diet has many advocates, and it must be acknowledged that in many instances the worst thing about it is its name. Stolte[30] has re-described his management with the free diet, and reports good results. Lichtenstein[31] reports 50 juvenile diabetics transferred from a low-carbohydrate diet to a free diet containing from 150 to 200 gm. of carbohydrate daily. Bojién[32] also advocates the free

diet and reports 16 children who look well, feel well, and usually have no acetonuria. Development is normal. Two had coma or pre-coma. Räihä[33] summarized the cases of 162 diabetic children treated in the University Children's Clinic, Helsinki, Finland, between 1922 and 1933. The mortality was 63 per cent! This high mortality was probably due to lack of close medical supervision in a sparsely populated country. In the fall of 1934 the policy of treating all diabetic children without restriction of diet was inaugurated by Räihä. Forty-four patients so treated are reported. The fasting blood sugar was 250 mg. or more. The twenty-four-hour excretion of sugar averaged 100 gm. and occasionally reached 250 gm. The volume of urine ranged from 1500 to 3000 cc. in twenty-four hours. The concentration of sugar varied from 5 to 9 per cent. Acetone, except in traces, seldom appeared in the urine. The mortality of the 44 patients was 16 per cent! The chief cause of death was regarded as hypoglycemia. Nutrition, growth and development were satisfactory. The patients withstood infection without difficulty.

In contrast to Räihä's management is that of Boyd and Jackson,[34] who advocate perfect control of diabetes aimed at averting degenerative complications. Using perfection as the standard of success, these authors were unable to use protamine-zinc insulin successfully. White[35] reports results in children in whom the prescribed regime was regulated as follows: 1000 calories at age one, plus 100 per each year of life up to thirteen years for girls and nineteen for boys, with gram ratios of C,2.0:P,0.9:F,1.0. Because of this discussion of the value of free diet it is fortunate to find that comparative analyses are being made in some clinics. Thus Nelson and Ward[36] present data which they interpret to indicate a fairly wide range within which the dietary allowance of diabetic children may be varied.

Hungerland[37] reports confirmation of the experiments of Fanconi with a low-protein maintenance diet. Dunlop and Pybus[38] advocate carbohydrate to stimulate endogenous insulin production.

*Insulin.* End results of treatment with protamine insulin in 604 patients with onset in childhood were reported by White.[39] The experience covered the period from September, 1935, to September, 1937. At that time, 9 patients were untraced, 4 had died and 17 had discontinued its use. Ninety per cent required regular insulin along with protamine-zinc insulin, given as a separate injection simultaneously with it before breakfast. In order to avoid the cumulative action of the two drugs, the standard for control of diabetes was held at 90 rather than 100 per cent, based on the relation of sugar output to carbohydrate intake. The incidence of coma and of hepatomegaly has decreased.

In order to refute the objections to the use of protamine-zinc insulin, namely that diabetes is not adequately controlled, that liberal diets cannot be used and that fluctuations of glycosuria occur and reactions of severity are inevitable, White and Winterbottom[40] summarized the records of 123 girls treated at a summer-camp unit.

*Complications.* Dwarfism in diabetic children has aroused much interest because of the fact that the condition appears to be a contradiction to the experiments of Houssay, Evans and Young. Beck and Suter[41] report a case classified as pituitary dwarfism which showed good results when anterior pituitary treatment was used. Boyd and Kantrow[42] report retardation in 6 per cent of their juvenile diabetics. They consider the etiology faulty nutrition, and believe that adequate nutrition will correct the condition. White,[43] summarizing endocrine manifestations in juvenile diabetes among 1250 patients, reports 94 dwarfish diabetic children and suggests that the possible explanation is change in the activity of the pituitary from hyperactivity at onset to hypoactivity after several years' duration, anti-growth hormone production or congenital lack of growth and pancreatropic (anti-diabetic) factors. Good results with anterior pituitary extract, alone and with thyroid extract, and with thyroid extract alone are reported. The best results were obtained when anterior pituitary extract was supplemented with thyroid extract. Other evidence of pituitary, thyroid, adrenal and gonadal involvements is discussed.

Boucomont, Serre and Godlewski[44] have published a case which they consider to be one of glycogen-storage disease. Stetson and Ohler[45] report a most valuable case of hepatomegaly, the only juvenile one with biopsy findings. The liver showed essentially normal structure. The nuclei contained no glycogen, but there was a large amount of intracellular glycogen. There was no increase in the deposition of fat. The amount of glucose laid down as glycogen was tremendous. Impairment of glycogenolysis rather than glycogenesis was considered responsible. The patient showed great tendency to ketonuria.

*Pathology.* The pathology of juvenile diabetes is summarized in Warren's[46] monograph. Devine[47] reports the case of a child twenty-five days old with diabetes — only 3 cases of younger children have been recorded in the literature — in which there was hypoplasia of the islets.

### PREGNANCY

That labor has only a slight effect on the blood sugar of normal subjects is reported by DeCamp.[48]

The average fasting prenatal blood sugar was 87 mg. per 100 cc. The rise during labor was 20 mg. The highest was 151 mg., and the lowest 68 mg.

High fetal mortalities in diabetic pregnancies are reported by Brandstrup and Okkels.[49] Of 23 births only 10 infants left the hospital alive. Johnstone[50] reports no maternal but high fetal mortality. Potter and Adair[51] analyzed the statistics of the Chicago Lying-In Hospital and found the incidence of diabetes to be 1 in 900 deliveries. The maternal mortality was 6.6 per cent. The fetal mortality in late pregnancy was 31.3 per cent. Toxemia occurred in 50 per cent of their cases. They conclude that death of the infant before delivery is due to transmission of metabolic products which interfere with the normal physiologic functions of the infant. Control of diabetes is stressed. Herrick and Tillman[52] report 56 patients with 67 pregnancies. Fifteen patients had onset during pregnancy. Twelve had toxemia; 32 had stillbirths, neonatal deaths or abortions. Antoine[53] reports 50 per cent failures in diabetic pregnancies.

In contrast to these views White[35] reports 34 cases in which the hormones had been studied by Smith and Smith and the prolan, in part, by White and Hunt. Of 14 patients with normal values, there was 1 fetal death; in 12 with high values, 4 deaths; and in 8 with high values who received substitutional therapy in the form of replacement doses of estrin and progesterone, 1 death. This latter occurred in a patient whose treatment was omitted. The hypothesis is given that stillbirth, miscarriage, premature labor, fatal asphyxia and gigantism are all related to prolan-estrin imbalance.

Smyth and Olney[54] report autopsy findings of a stillborn infant of a diabetic mother. There was advanced bone age, more mature genital tract development, hypertrophy and hyperplasia of the islands of Langerhans, cystic degeneration of the ovaries with large and small abortive graafian-follicle cysts and advanced development of the pituitary and thyroid glands and endometrium.

81 Bay State Road.

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# NEW HAMPSHIRE MEDICAL SOCIETY

## PROCEEDINGS OF THE

## ONE HUNDRED AND FORTY-EIGHTH ANNIVERSARY

### House of Delegates, June 7, 8 and 9, 1939

THE House of Delegates convened at the Hotel Carpenter, Manchester, on Wednesday evening, June 7, 1939, at 7:30, with Speaker W. J. Paul Dye, of Wolfeboro, presiding.

The following members answered the roll call:

The President, ex-officio
The Secretary-Treasurer, ex-officio
Chester L. Smart, Laconia
James E. Bovaird, Wolfeboro
Francis J. C. Dube, Center Ossipee
Osmon H. Hubbard, Keene
Norris H. Robertson, Keene
Joseph E. Larochelle, Berlin
Edgar J. Thibodeau, Berlin
Leslie K. Sycamore, Hanover
John C. Eckels, Lisbon
Willard A. Bates, Littleton
Deering G. Smith, Nashua
George C. Wilkins, Manchester
Clarence E. Dunbar, Manchester
George V. Fiske, Manchester
Luther A. March, Nashua
Warren H. Butterfield, Concord
Charles H. Parsons, Concord
William P. Clough, Sr., New London
Fred Fernald, Nottingham
Wendell P. Clare, Portsmouth
Frederick S. Gray, Rye
Edna Walck, Dover
Norman K. Chesley, Rochester
Henry C. Sanders, Jr., Claremont
Addison Roe, Newport

SPEAKER DYE: Will Dr. Smart and Dr. Clare please act as the Credentials Committee?

The minutes of the last meeting are published in the 1938 transactions of the New Hampshire Medical Society. What is your pleasure about reading these minutes?

DR. F. J. C. DUBE: I move that the reading of the minutes be omitted.

This motion was seconded and was carried.

### *Report of the Secretary-Treasurer*

The following report for 1938 is herewith submitted:

MEMBERSHIP DECEMBER 31, 1938

| | |
|---|---|
| Belknap County | 32 |
| Carroll County | 16 |
| Cheshire County | 30 |
| Coos County | 38 |
| Grafton County | 61 |
| Hillsborough County | 127 |
| Merrimack County | 76 |
| Rockingham County | 57 |
| Strafford County | 33 |
| Sullivan County | 18 |
| Not in county society | 6 |
| | 494 |
| Affiliate members | 25 |
| Honorary members | 12 |
| | 37 |
| Total | 531 |

The total membership on December 31, 1937, was 488.

FINANCIAL STATEMENT

Receipts

| | |
|---|---|
| January 1, 1938. Balance forward | $942.14 |
| Net receipts annual meeting | 246.24 |
| Belknap County | 192.00 |
| Carroll County | 96.00 |
| Cheshire County | 174.00 |
| Coos County | 258.00 |
| Grafton County | 348.00 |
| Hillsborough County | 756.00 |
| Merrimack County | 432.00 |
| Rockingham County | 432.00 |
| Sullivan County | 114.00 |
| Strafford County | 222.00 |
| Benevolence Fund (Women's Auxiliary) | 50.00 |
| Members not in county societies | 36.00 |
| Cash received at annual meeting | 49.00 |
| | $4347.38 |
| 1938 dues deposited 1/20/39 | 30.00 |
| | $4317.38 |
| 1937 dues deposited 1/14/39 | 84.00 |
| | $4233.38 |

Expenditures

| | |
|---|---|
| *New England Journal of Medicine* (cuts and tables) | $10.16 |
| *New England Journal of Medicine* (copies to members) | 402.71 |
| *New England Journal of Medicine* (transactions) | 407.43 |
| *New England Journal of Medicine* (journals) | 137.35 |
| *New England Journal of Medicine* (cut, Dr. King) | 3.44 |
| Carleton R. Metcalf (salary) | 400.00 |
| Bridge and Byron (printing) | 97.50 |
| Postage and envelopes | 128.83 |
| Clerical work | 78.00 |
| Eagle and Phoenix Hotel Co. (committee lunches) | 12.80 |

| | |
|---|---|
| R. O. Blood, treasurer (telephone and telegraph calls) | 14.28 |
| Women's Auxiliary | 100.00 |
| Benevolence Fund | 126.50 |
| The Robbins Company (gold medals) | 45.57 |
| Frank J. Sulloway (retaining fee) | 100.00 |
| George C. Wilkins (Cancer Committee) | 60.00 |
| Colin C. Stewart (Child Health) | 50.00 |
| Frederic P. Scribner (committee expenses) | 4.15 |
| Concord Photoengraving (half-tone cuts) | 18.28 |
| Dartmouth College (Commonwealth Fund) | 6.35 |
| The Barwood Press (Committee on Medical Education and Hospitals) | 10.25 |
| Florence McCann (Committee on Medical Education and Hospitals) | 21.45 |
| Edna Walck (telephone calls, Strafford County) | 3.50 |
| American Medical Association (*American Medical Directory*) | 15.00 |
| Deering G. Smith (A. M. A. expenses) | 259.40 |
| State of New Hampshire (certified copy of charter for A. M. A.) | 1.00 |
| Eastman Kodak (film at annual meeting) | 9.00 |
| Hayes E. Martin (expenses, annual meeting) | 29.50 |
| I. S. Ravdin (expenses, annual meeting) | 33.30 |
| Walter Bauer (expenses, annual meeting) | 4.85 |
| Madeline A. May (stenographer, annual meeting) | 300.27 |
| Madeline A. May (stenographer, Dr. Fishbein's address) | 37.80 |
| | $2928.67 |
| Cash received at 1938 meeting | 49.00 |
| | $2977.67 |
| 1938 dues deposited 1/20/39 | 30.00 |
| | $3007.67 |
| Checkbook balance 1/1/39 | 1063.47 |
| | $4071.14 |
| 1937 dues deposited 1/14/38 | —84.00 |
| | $3987.14 |
| Net receipts, 1938 annual meeting, deposited 2/21/39 | 246.24 |
| | $4233.38 |

The society is in good financial condition with all its debts paid. On January 1, 1939, there was a balance in the bank of $1063.47. On this same date the Benevolence Fund amounted to $1794.06. During the past year we received $50.00 for this fund from various women's auxiliaries. The only officer of the society who has died during the past year was Charles A. Weaver, of Manchester, a long-time member of the Committee on Mental and Social Hygiene.

For the two appointive offices which lie within the province of your president, Dr. Coburn chose these men: for Anniversary Chairman, Ezra A. Jones, of Manchester, and for a member of the New England Medical Council, Robert H. Brooks, of Claremont.

I offer the following report concerning the recommendations which were made by the House of Delegates a year ago:

1. A check for $100.00 was sent to Frank J. Sulloway, our legal adviser, and this sum is to be given to him annually until further notice.

2. The sum of $50.00 was given to the Committee on Child Health and the sum of $60.00 to the Committee on the Control of Cancer.

3. The Necrologist has been advised that he should submit an annual report to the House of Delegates, and ten councilors from the county societies have been reminded that they have the same duty to perform.

4. If you have read carefully the program for this year's meeting, you will notice that there are to be no set discussions of the papers presented each afternoon by our invited guests, although questions may be asked in each instance from the floor. This change ought to make the meeting move at a faster pace.

The work of two of our committees, not otherwise reported, deserves mention. The Advisory Committee on Jurisprudence has met three or four times during the past year and has been up to the minute in considering real or threatened cases of malpractice. If a case of this kind is handled promptly and judiciously, it can frequently be aborted.

Since the Legislature is in session, the Committee on Public Relations has been active. The work of this committee has been extremely satisfactory because Dr. Blood is president of the State Senate. He has been of great help.

Here are some of the experiences of the Committee on Public Relations:

1. We heard a rumor that the town and city clerks were not entirely satisfied with the law requiring a blood test before marriage. I asked permission to sit in at one of the meetings of their executive committee and later we had a second meeting with the assistant attorney general. The clerks were not opposed, in general, to the idea of a blood test, but they had had difficulty with the interpretation of two or three statements in the law. We were able to have these interpreted to their satisfaction.

2. At the request of the optometrists, we supported their bill to limit the activities of cut-rate competitive establishments controlled by out-of-state owners and run by poorly trained clinicians. This bill failed to pass.

3. We heard that a representative from Laconia proposed to offer a bill for compulsory health insurance affecting every citizen of New Hampshire. The contents of the bill made the ideas on this subject emanating from Washington seem tame.

We told this legislator that his bill would not pass and suggested to him that he introduce in its stead a bill for group hospitalization insurance, prepared by the Hospital Superintendents' Club. A day or two thereafter the bill was thus introduced.

Incidentally the Hospital Superintendents' Club is now making arrangements to form an organization to offer group hospital insurance under the terms of this new legislation.

4. The committee supported the bill which requires that each candidate for a medical license in New Hampshire must be an American citizen. A citizen of Canada who lives in a province which reciprocates with New Hampshire is excepted. This bill passed.

5. We opposed the Federal Narcotic Law which would shift to the State the responsibility and expense of enforcing a mass of rigid legislation concerning narcotics. We felt that there was no appreciable narcotic problem in New Hampshire, that the federal law contained altogether too much red tape, and that there

was no reason why the State should pay for doing a job which the Federal Government is now doing to everyone's satisfaction.

The commissioner of the Department of Public Welfare asked several ophthalmologists who are members of the society to advise him informally and unofficially in the care and treatment of the needy blind. The doctors responded willingly and the commissioner now wishes the House of Delegates to appoint them officially as an advisory board. These men receive their traveling expenses but do not receive a salary.

Last fall your secretary spoke at the annual convention of the New Hampshire Pharmaceutical Association at Bretton Woods. His subject was "Socialized Medicine." He did not approve of it. This venture was responsible, in part, I believe, for the fact that we have had the cooperation of the druggists in supporting or opposing some of the legislation that I have enumerated, and we, in turn, have agreed to support pharmacy legislation which seems proper and constructive. The Dental Association and Hospital Superintendents' Club are also ready to cooperate with us. In these days of unrest at Washington, with the Wagner Bill to the fore, it seems highly probable, as a wise old philosopher, Ben Franklin, once said, that "We must all hang together, or assuredly we must all hang separately."

We have tried, as you remember, to lend a helping hand in the Washington melee by sending two or three questionnaires to all the members of this society. The American Medical Association feels that the information thus gleaned will be of material help in opposing or in modifying the Wagner Act.

One more thought: I have been approached by the proprietor of the Soo-Nipi Park Lodge on Lake Sunapee, who wants us to hold our annual meeting some time or other at his hotel. He assures me that he can give us all the space we need and can quote a reasonable rate. If a meeting were held there, it would presumably come about the time that our present meeting has come, in the middle of June.

In Maine, state medical meetings are often held at a summer resort. They draw a large attendance and seem to be very successful. I should rather like to try it some time here in New Hampshire.

CARLETON R. METCALF, *Secretary.*

DR. C. E. DUNBAR: The Committee on Officers' Reports desires to express its approval of the plans of our secretary to speed up the annual meeting and his methods of co-operating with the dentists, druggists and hospital authorities.

The Advisory Committee on Jurisprudence and the Committee on Public Relations are to be congratulated on their good work.

We recommend that an Advisory Committee on the Care of the Needy Blind co-operate with the Commissioner of the Department of Public Welfare.

I move the adoption of this portion of our report.

This motion was seconded and carried.

DR. DUNBAR: We recommend that future meetings of the State Society be held in April or May, and that the 1940 meeting be held in Manchester.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

DR. DUNBAR: The Committee on Officers' Reports wishes to express its appreciation to the various officers and committee members. We have reports from nine of the ten councilors. We recommend that these reports be accepted.

I move the adoption of this portion of our report.

The motion was seconded and was carried.

SPEAKER DYE: I am going to ask that the councilors' reports be read.

### *Councilor's Report for Sullivan County*

The Sullivan County Medical Society enjoyed two meetings during the past year, both of which were well attended and very enthusiastically received. Membership for the year of doctors practicing in the county was 100 per cent.

The first meeting, in the summer, was held at Newport. Dr. H. G. Lee, of Boston, gave a very interesting talk on "Low-Back Pain." We also had as a guest at this meeting Dr. G. E. Hoffses, of Manchester. The Carrie Wright Hospital provided an excellent luncheon.

The winter meeting was held in Claremont. Luncheon was served at the Claremont General Hospital. This meeting was attended by Dr. Clarence O. Coburn, president of the New Hampshire Medical Society. Dr. Coburn outlined the problems of the New Hampshire Medical Society and spoke especially of the necessity of all doctors' carrying liability insurance.

EMERY M. FITCH.

### *Councilor's Report for Merrimack County*

On July 6, 1938, a luncheon meeting was held at The Inn in New London, with Dr. William Clough presiding. Dr. Sawyer, of Colby Junior College, explained the medical secretarial course given by the school. The object of the course is threefold: to give a broader educational training; to teach the students medical technology; and to teach laboratory technic — they do not attempt to train technicians. Dr. James B. Woodman spoke briefly and Dr. John H. Munro, of Sunapee, brought greetings from the Sullivan County Medical Society. Dr. Lewellys F. Barker, of Baltimore, spoke of his early experiences and reviewed briefly newer methods of treatment.

The September 14, 1938, meeting was held at the Eagle Hotel, Concord. A request from the Merrimack County Commissioner's office, that mileage fees on relief cases be reduced from 15c to 10c a mile, and that payment for county hospital patients be eliminated, was discussed. It was voted not to accept these propositions.

It was voted that the society recommend to the Concord City Government that physicians be paid for care of city cases in hospitals, not taken care of by the city physician, in the same manner as county cases are now paid for.

Dr. Jules Weinberg, Dr. Philip Forsberg, Dr. Alfred Frechette and Dr. Mary Atchison were admitted to membership.

On January 4, 1939, the annual meeting was held at the Eagle Hotel, and the following officers were elected:

president, Joseph D. Shields, Concord; vice-president, Frank J. McQuade, Franklin; secretary-treasurer, Warren H. Butterfield, Concord; censors, Harold Levine (3 years), Henry H. Amsden (1 year); delegates, Warren H. Butterfield, Charles H. Parsons, William P. Clough; auditors, Harold W. Epling, Eugene Chamberlain; member to Council, Henry H. Amsden (3 years). Dr. Raymond Galloway, of Suncook, was admitted to membership.

Mr. Kenneth E. Pohlmann explained the Federal Farm Security program for medical care of farm families. After a heated discussion, the matter was postponed until the spring meeting for further action.

At the spring meeting, held on April 5, 1939, Dr. Ralph S. Keyes, of Penacook, was voted into membership. Dr. Herbert Messinger, Dr. Edward Putnam and the secretary, ex-officio, were appointed as a relief board for Merrimack County. The matter of Federal Farm Security endorsement was indefinitely postponed. Dr. Edward Roberts of Lederle Laboratories presented and discussed a color film on allergy.

HENRY H. AMSDEN.

## *Councilor's Report for Hillsborough County*

The thirty-fourth annual meeting of the Hillsborough County Medical Society was held on November 1, 1938, at the Rice–Varick Hotel, Manchester. At this date, the society numbered one hundred and thirty-four members, but since then six new ones have been admitted, making a total of one hundred and forty.

The president of the New Hampshire Medical Society, Dr. C. O. Coburn, gave a very interesting address about the American Medical Association's study of medical care, legislative accomplishments, hospitalization insurance, and the New England Postgraduate Assembly. Dr. D. G. Smith, delegate to the American Medical Association's meeting, spoke on the American Medical Association's position on socialized medicine, saying, "it favors decentralization of the care of the indigent, hospital insurance, and voluntary health insurance but opposes compulsory health insurance." Dr. B. E. Sanborn, president of the Hillsborough County Medical Society, read an excellent address concerning changes in the practice of medicine. Honorable Charles W. Tobey spoke on "World Trends from a Non-Partisan Standpoint." Dr. Robert S. Palmer, of Boston, gave a paper on "Current Problems in the Diagnosis and Treatment of Essential Hypertension."

During the year we lost a charter member of our society, Dr. Charles A. Weaver, of Manchester.

On May 9, 1939, the twenty-seventh semi-annual meeting of the Hillsborough County Medical Society was held at the Nashua Country Club. After a brief business meeting the morning session was taken up by a paper by Mr. Kenneth E. Pohlmann, of Boston, the subject of which was "Group Medical Care in New Hampshire for Clients of the Farm Security Administration."

After a prolonged discussion, the matter was tabled by a unanimous vote of the society, and the councilors were instructed to oppose this plan.

During the afternoon session, Dr. Alexander Marble, of Boston, read a paper on "Treatment of Diabetes in Hospital and Home." Dr. Arthur M. Greenwood, of Boston, read a paper on "Diagnosis and Treatment of Skin Lesions."

TIMOTHY F. ROCK.

## *Councilor's Report for Rockingham County*

Rockingham County Medical Society held two regular meetings during the past year — the first at the Exeter Hospital and the second at the Portsmouth Hospital.

At these meetings various case histories were read and discussed, and x-ray plates exhibited. Papers were read on various subjects, and generally discussed.

The annual meeting was held in October.

HERBERT L. TAYLOR.

## *Councilor's Report for Strafford County*

The Strafford County Medical Society, for the year 1938, had thirty-seven active members and one affiliate member. Four of the thirty-seven were new members and one a transfer from an adjacent county.

There were three meetings held during the year. The first was a special meeting on February 9, 1938, at which Dr. Sven M. Gundersen, of Hanover, presented the "New Hampshire Pneumonia Program." This meeting was well attended. The second was the spring meeting at the City Hotel in Rochester, on April 27, at which twenty-one were present. At this meeting, four members were voted to affiliate membership and one new member was accepted. Dr. Herbert D. Adams, of the Lahey Clinic, spoke on "The Acute Abdomen." The one hundred and thirty-first annual meeting was held at the Hayscroft Inn at Barrington, October 26. There were twenty-one present. Two members were voted to affiliate membership. At this meeting Dr. Coburn, president of the New Hampshire Medical Society, spoke. Dr. Deering G. Smith, of Nashua, reported on the special meeting of the House of Delegates of the American Medical Association. Dr. Franklin N. Rogers, of Manchester, read a paper on "A Physician's Responsibility to the Growing Child from Birth to Adolescence."

There were no deaths in 1938.

With the advent of the year 1939, we find Strafford County Medical Society with twenty-nine active members and seven affiliate members. One active member has moved from the State. We regret the loss of our oldest member, Dr. R. G. Blanchard, of Dover, who died on January 12, 1939, at the age of eighty-six. Dr. Blanchard came to Dover shortly after his graduation from Bowdoin Medical School in 1884 and had served this community continuously and well since that date.

The spring meeting, held at the American House in Dover on April 26, 1939, by all intents and purposes should be included in the report for 1939. Twenty-three members were present. Very little business was transacted at this meeting, one member being appointed to affiliate membership and a new auditor appointed to fill the vacancy created by Dr. Blanchard's death. The rest of the time was devoted to a talk by Dr. Frank Barton, of the Massachusetts Memorial Hospitals, Boston, on "The Use of Placental Blood for Transfusions." It included a brief history of blood banking and a discussion of the current procedures in the collection of blood and its use, and was accompanied by very fine colored moving-picture films.

We might add that every member's dues have been paid on time for both years, 1938 and 1939.

JOHN A. HUNTER.

## *Councilor's Report for Coos County*

The Coos County Society is in a very good condition. We have forty-one members in good standing. There are, I think, four others in the county that are not members, but these are men that have only recently come among us and will probably join us later.

We have had only one meeting this year, which was held in Berlin, with good attendance. Dr. Frost, of Hanover, was the speaker. Our second meeting will be

held soon after the state meeting, and an exceptional program has been arranged.

RICHARD E. WILDER.

### *Councilor's Report for Carroll County*

Two county medical meetings were held during the past year, with excellent attendance.

The first meeting was held in Wolfeboro in December, and Dr. Mendelson, of Dover, gave an interesting talk on "Socialized Medicine as Practiced in Germany."

The second meeting was held in Ossipee in April of this year. The meeting was attended by Dr. Coburn, president of the New Hampshire Medical Society. Dr. Clark, of Lewiston, Maine, talked on certain aspects of radiology, supplementing his talk with x-ray films.

It was suggested by Dr. Clow that, since the year 1941 will mark the one hundred and fiftieth anniversary of the New Hampshire Medical Society, the members of the Carroll County Medical Society propose a motion in the House of Delegates to the effect that the president of the state society appoint a committee to draw up a tentative plan for a suitable program. At this meeting, the possible pitfalls of the much-discussed Wagner Bill were also considered.

JAMES E. BOVAIRD.

### *Councilor's Report for Belknap County*

The Belknap County Medical Society holds six meetings yearly, from November to April inclusive, on the second Tuesday of the month at six-fifteen in the afternoon. The Auxiliary holds meetings at the same time and place, and this apparently helps the attendance.

The society has thirty-three members and the average attendance at the meetings is in the twenties.

We have had a quiet but prosperous year.

CLIFTON S. ABBOTT.

### *Councilor's Report for Grafton County*

The Grafton County Medical Society has followed the usual custom of holding semiannual meetings.

The regular annual meeting, with the election of officers, was held in October, at the Mary Hitchcock Memorial Hospital, Hanover. Dinner was served at the hospital and an interesting scientific program was presented.

The spring meeting was held on May 25 at the Grafton County Hospital, Woodsville. Mr. Kenneth E. Pohlmann, of the Farm Security Administration, presented the Farm Security Administration's plan for medical care of low-income farm families. The scientific program was the presentation of the subject of "Lead Poisoning" by Dr. Ralph Hunter, of Hanover, and Dr. John C. Eckels, of Lisbon.

ARTHUR W. BURNHAM.

SPEAKER DYE: I now appoint for the Nominating Committee: Chester L. Smart, chairman, Norris H. Robertson, Leslie K. Sycamore, Deering G. Smith and Fred Fernald.

### *Report of the Delegate to the American Medical Association*

Three well-attended sessions of the American Medical Association have been held since the last meeting of the New Hampshire Medical Society. Unprecedented unity and harmony were present with no sign of dissension or revolt in the House of Delegates. This was undoubtedly due to the federal indictment of the American Medical Association and the proposal to socialize the practice of medicine. The physicians of the country are supporting the American Medical Association in increasing numbers, as is shown by a membership gain of about four thousand in each of the last two years. On May 1, 1939, the membership was 113,113.

Your delegate served as chairman of the Reference Committee on Credentials and at the San Francisco session attended the meeting of Associated State Committees on Postgraduate Medical Education. It was stated that the initiative for postgraduate instruction should come from the profession and that it should be centered in the medical schools, with the hospitals co-operating. After considerable discussion of the manner in which postgraduate instruction is being given in the various states, it was voted that the medical profession accept co-operation from the state and federal groups in giving postgraduate instruction and that this should always be done under the direction and control of the state medical societies.

The San Francisco session, which was held June 13–17, 1938, was the best attended and the most interesting session that has been held on the Pacific coast. The report of the Board of Trustees was as usual very interesting and instructive. It showed what the association is endeavoring to do to assist the physicians and to keep the practice of medicine at a high level. It was stated that the Bureau of Legal Medicine has given the state medical societies full instructions as to the procedure to obtain social-security-tax exemption, if this is possible. It is very necessary that state and county medical societies should ask for the exemption of tax liability under the Income Tax Act and also under the Social Security Act. The Board of Trustees reported evidence to disprove the claim that some organizational arrangement can lower the cost of good medical services. It has been found that the average cost of this service is twenty-five to thirty dollars per person annually.

The continued study of air conditioning was advised and it was recommended that an investigation be made of the possibility of artificial climate's causing injury. It was voted that the primary responsibility in the care of the sick and injured in disaster rests with the local physicians and dentists. The function of the American Red Cross should be that of co-operation and assistance to the local groups. The trustees stated that the Committee on Medical Care has been appointed and is functioning. A resolution was passed to the effect that it is highly desirable that full citizenship in the United States be demanded of graduates of foreign medical schools before they be licensed to practice medicine in this country.

It was recommended that local and county societies study the improvement of medical services in rural areas and especially investigate the complaints that charges made in the rural communities are still based on mileage and are too high. A study of fee schedules is to be made by the Bureau of Medical Economics. The rental of radium has been studied and it was voted that the prescribing and directing of its use in the case of a patient whom the prescriber has not examined or seen is an unethical medical procedure. It was recommended that constituent state societies consult with the Judicial Council when changes in the constitution are deemed necessary. This is an attempt to prevent conflict between the constitutions and by-laws of the state societies and the American Medical Association.

It was requested that the action of the House of Delegates declaring the association of doctors of medicine with cultists to be unethical and reprehensible, be brought

to the attention of the general assemblies of the state societies. Consultations or associations in practice were declared to be bad, but teaching in cultist schools and addressing cultist societies is worse. The House of Delegates expressed its complete confidence and respect for the editor of the *Journal of the American Medical Association.* The committee in charge of the survey of medical care being conducted by the association urged the co-operation of every member and county and state society so that the findings may be complete.

It was recommended that each unit of the American Medical Association be urged to undertake immediately the education of the public on the need and value of competent animal experimentation. It was also recommended that studies be initiated for the determination of definite tests for alcohol intoxication. Visual standards for operating motor vehicles were approved. It was stated that state medical associations should endeavor to procure medical memberships on compensation commissions and industrial boards. The practice of medicine by hospitals was disapproved, and the inclusion of special medical services such as anesthesia, radiology or pathology in group hospitalization insurance policies was approved only if specified cash payments for the cost of these services be paid directly to the subscribers.

An address prepared by Miss Josephine Roche, chairman of the Interdepartmental Committee to Co-ordinate Health and Welfare Activities of the Federal Government, was read by Dr. Draper. She stated that technical committees had been appointed, were making surveys and would report at a national health conference on July 18–20, 1938, to which some of the doctors and officers of the American Medical Association had been invited. At this conference a national health program was presented by the committee, of which Miss Roche was chairman. Its Technical Committee on Medical Care found:

1. Preventive health services are grossly insufficient.
2. Hospitals are inadequate and their financial support insufficient in many communities, particularly rural areas, and especially for the indigent and near indigent.
3. One third of the population of this country is receiving inadequate or no medical service.
4. An even larger fraction of the population suffers from economic burdens created by illness.

The committee's recommendations were given, but no general discussion of its program was allowed. The recommendations have been summarized as follows:

1. Expansion of the public-health service, with increased personnel; control of tuberculosis, venereal diseases, pneumonia, cancer and malaria and programs of mental hygiene, industrial hygiene and maternal and child welfare.
2. Increase of hospital facilities by constructing and maintaining hospitals containing 360,000 beds, and also 500 health and diagnostic centers.
3. Medical care of the medically indigent by federal grants-in-aid to the states; this program to be developed around and based on the existing public-health service.
4. General program for medical care either by the expansion of public medical services so that the system of medical care would be similar to that of public education or by compulsory health insurance similar to the present old-age security.
5. Insurance against loss of wages during sickness to be developed alongside the present unemployment insurance.

A special session of the House of Delegates was held at Chicago, September 16–17, 1938, to discuss this proposed health program. Numerous plans to provide for adequate medical care were offered by various medical societies and individuals. Representatives of the National Medical Association, mouthpiece for 5000 colored physicians, addressed the delegates and pledged the co-operation of their association. It was announced that the Department of Justice of the United States Government proposed to seek an indictment of the American Medical Association as a monopoly. It was voted that in the event of an indictment the House of Delegates give full support to the Board of Trustees in defending such litigation to the utmost, in order to establish the right of organized medicine to oppose types of contract practice damaging to the health of the public.

After a full and lengthy discussion of the proposed health program the House of Delegates unanimously approved the following:

1. The establishment of a federal department of health with a doctor of medicine as its secretary and a member of the Cabinet; the general principles for the expansion of public health and maternal and child health services; but this should not include the treatment of disease that could be done by private practitioners.
2. The expansion of hospital facilities where necessary, stressing the use of existing facilities. It suggested that hospitals be paid the costs of hospitalization of the medically indigent.
3. The complete medical care of the indigent, organized by local governmental units and supported by tax funds, provided that the administration be simplified and co-ordinated and that it be arranged by local public officials in co-operation with the local medical profession.
4. Hospital-service insurance not including any type of medical care; voluntary cash-indemnity insurance to cover the cost of emergency or prolonged illness; and industrial-illness insurance. Compulsory health insurance was opposed.
5. Insurance against loss of wages due to illness. It was suggested that the attending physician be not asked to certify as to illness or recovery.

During the year your delegate has attended six county medical society meetings and has told the members about the National Health Program and the recommendations of the American Medical Association. In the summer the threatened indictment of the association and its officials under the Sherman antitrust law became a fact. In February, Senator Wagner, of New York, introduced in Congress a bill which, if enacted, would be known as the National Health Act of 1939. The meeting of the House of Delegates at St. Louis, May 15–19, 1939, was chiefly concerned with a discussion of this bill. The proposal to have a permanent woman delegate was turned down as women may now be elected delegates to the association. Chemical tests were endorsed as criteria for alcoholic intoxication. The question of colored physicians' being members of the American Medical Association was discussed. It was brought out that they are eligible to mem-

bership in the association, that many of them are members at the present time; but that every county medical society has the right of self-government in local matters, including membership. It was voted that there should be no discrimination by the government agencies against any competent and qualified physician because of race, color, creed or sex which interferes with his right as a physician to serve those who desire to consult him.

The Farm Security Administration plans for medical care were discussed. It was brought out that these plans were in operation in twenty-three states at a cost of $15–$30 per family annually. It was voted that there should be a better understanding between the county and state medical societies and the Farm Security Administration. It was recommended that all county agreements be made under master agreements with the state societies.

A reference committee was appointed to consider the Wagner Health Bill, which is intended to make effective the national health program outlined in this report. It is: "A Bill to provide for the general welfare by enabling the several states to make more adequate provision for public health, prevention and control of disease, maternal and child health agencies, construction and maintenance of needed hospitals and health centers, care of the sick, disability insurance, and training of personnel; to amend the Social Security Act; and for other purposes." Long hearings were held at which it was brought out that some of its proposals were good but that others were bad and that the bill should either be opposed as a whole or be amended drastically.

The committee's report was adopted without a dissenting vote and it is recommended that all members of the society read it, as it will give them an understanding of the Wagner Health Bill and the position of the American Medical Association relative to it. The committee summarized the report as follows:

1. The Wagner Health Bill does not recognize either the spirit or the text of the resolutions adopted by the House of Delegates of the American Medical Association in September, 1938.

2. The House of Delegates cannot approve the methods by which the objectives of the National Health Program are to be obtained.

3. The Wagner Health Bill does not safeguard in any way the continued existence of the private practitioners who have always brought to the people the benefits of scientific research and treatment.

4. The Wagner Health Bill does not provide for the use of the thousands of vacant beds now available in hundreds of church and community general hospitals.

5. This bill proposes to make federal aid for medical care the rule rather than the exception.

6. The Wagner Health Bill does not recognize the need for suitable food, sanitary housing and the improvement of other environmental conditions necessary to the continuous prevention of disease.

7. The Wagner Health Bill insidiously promotes the development of a complete system of tax-supported governmental medical care.

8. While the Wagner Health Bill provides compensation for loss of wages during illness, it also proposes to provide complete medical service in addition to such compensation.

9. The Wagner Health Bill provides for supreme federal control: federal agents are given authority to disapprove plans proposed by the individual states.

10. The Wagner Health Bill prescribes no method for determining the nature and extent of the needs for preventive and other medical services for which it proposes allotments of funds.

11. The Wagner Health Bill is inconsistent with the fundamental principles of medical care established by scientific medical experience and is therefore contrary to the best interests of the American people.

12. The fortunate health conditions which prevail in the United States cannot be disassociated from the prevailing standards and methods of medical practice.

13. No other profession and no other group have done more for the improvement of public health, the prevention of disease and the care of the sick than have the medical profession and the American Medical Association.

14. The American Medical Association would fail in its public trust if it neglected to express itself unmistakably and emphatically regarding any threat to the national health and well-being. It must, therefore, speaking with professional competence, oppose the Wagner Health Bill.

15. The House of Delegates would urge the development of a mechanism for meeting the needs for expansion of preventive medical services, extension of medical care for the indigent and the medically indigent, with local determination of needs and local control of administration, within the philosophy of the American form of government and without damage to the quality of medical service.

16. The fundamental question is how and when a state should be given financial aid by the federal government out of the resources of the states as a whole, pooled in the federal treasury.

17. The bizarre thinking which evolved the system of federal subsidies — sometimes called "grants-in-aid" — is used to induce states to carry on activities suggested frequently in the first instance by officers and employees of the federal government.

18. The use of federal subsidies to accomplish such federally determined activities has invariably involved federal control.

19. Any state in actual need for the prevention of disease, the promotion of health and the care of the sick should be able to obtain such aid in a medical emergency without stimulating every other state to seek and to accept similar aid, and thus to have imposed on it the burden of federal control.

20. The mechanism by which this end is to be accomplished, whether through a federal agency to which any state in need of federal financial assistance can apply, or through a new agency created for this purpose or through responsible officers of existing federal agencies, must be developed by the Executive and the Congress, who are charged with these duties.

21. Such a method would afford to every state an agency to which it might apply for federal assistance without involving every other state in the Union or the entire government in the transaction.

22. Such a method would not disturb permanently the American concept of democratic government.

The 1940 session of the American Medical Association will be in New York next June. This is probably as near

to New Hampshire as these great events will ever be held, and all our members should make an effort to attend.

DEERING G. SMITH.

SPEAKER DYE: Gentlemen, you have heard the report of your delegate to the American Medical Association. Are there any questions?

DR. SMITH: I want to say a word about the Farm Security Administration. All the medical surveys have said $25.00 to $30.00 per person was necessary annually for complete medical service. Yet, under the Farm Security Administration plan, the amount varies from $15.00 to $30.00 annually per family; in some cases that does not cover complete medical service, and it does not cover hospitalization.

DR. DUNBAR: The Committee on Officers' Reports recommends that the Secretary apply for the exemption of the Society from tax liability under the Income Tax and Social Security acts. He should also give instructions to the secretaries of the county societies, in order that they may make similar applications.

The recommendations relative to changes in the constitution of the Society should be brought to the attention of the Committee on Amendments to the Constitution and By-Laws.

Our society should be on its guard against the encroachments of the hospitals in the field of medical practice.

We approve of the principles relative to the extension of medical care that were adopted by the House of Delegates of the American Medical Association.

We also agree with that body in its opposition to the Wagner Health Bill.

We recommend that the Secretary, next spring, call the attention of the members to the session of the American Medical Association, to be held in June, 1940, at New York City.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

### *Report of Committee on Amendments to Constitution and By-Laws*

Your committee has received no suggestions for changes in our laws during the year, and no changes appear at this time to require the attention of the committee. The carefully prepared amendments, which have been the work of Dr. Henry O. Smith, former chairman, have left a structure that for the present, at least, appears to meet our needs.

Propositions for amendments, originating in the House of Delegates, will receive the prompt and careful consideration of your committee.

FRED E. CLOW,
LOUIS W. FLANDERS,
EMERY M. FITCH.

DR. DUNBAR: We have no further recommendations to add to this report, except the recommendation which we made in the previous report.

### *Report of the Committee on Control of Cancer*

It is evident that the physicians of New Hampshire are becoming more and more cancer conscious. Charity patients and private patients alike are having earlier diagnoses of cancer due to a more alert attitude on the part of the family physician. As a corollary of this improvement, the Pathological Laboratory at Hanover reports that an increased number of biopsy specimens are being sent in.

There is still plenty of evidence that many physicians are not alert to the serious possibilities of such symptoms as flowing between periods and after the menopause, and bleeding from the rectum and bladder. No form of treatment in such cases should be instituted until definite diagnosis is made.

Curability of cancer depends on early recognition, and this, in turn, demands as a prerequisite the seeking of advice by the patient. Education of the public regarding methods of cancer control is as important a duty of the physician as the other two factors in cancer control: early diagnosis and early treatment.

This year, as in the past, your committee has prepared and mailed three letters on pertinent cancer subjects to every member of the profession in New Hampshire. The first one (March, 1939) was on the diagnosis and treatment of metastasis in the cervical lymph nodes. The second (April, 1939) covered methods of examination of breast cancer, and the third letter (May, 1939) gave information pertaining to the diagnosis and treatment of malignant melanoma.

Your committee continues to co-operate with the New Hampshire Cancer Commission with its clinics and with the Women's Field Army of the American Society for the Control of Cancer.

Due to the utilization of pre-canceled stamped envelopes, your committee has expended only $42.07 of the $60 appropriated. We ask this year for an appropriation of $50.

GEORGE C. WILKINS,
HOWARD N. KINGSFORD,
GEORGE F. DWINELL.

DR. DUNBAR: The Committee on Officers' Reports congratulates the Committee on the Control of Cancer on the evidence presented that its labors are bearing fruit.

We recommend the appropriation of $50.00 for the work of this committee.

I move the adoption of this portion of the report.

This motion was seconded and was carried.

### *Report of the Committee on Medical Education and Hospitals*

The most interesting development of this year has been the evolution of the program of the Associated State Committees on Postgraduate Medical Education. The third annual meeting was held under the auspices of the American Medical Association during the meeting in St. Louis in May. At this meeting our committee was represented by Dr. Deering G. Smith, the delegate from the New Hampshire Medical Society. It is probable that,

through this association of committees, federal participation in the program of postgraduate education will be worked out.

The Commonwealth Fund fellowships have been sufficiently publicized in the last few years so that their purpose and operation are well known. The announcements for this year were sent out by this committee in January. Up to the present, only fourteen requests for application blanks have been received. These are filled out by the applicant himself, and mailed to the office of the Commonwealth Fund in New York City. It is rather discouraging that this number shows a gradual decrease in the past three years. Suggestions by us, to the effect that the eligibility requirements for the fellowships be widened in order that a greater number of men be eligible, have not as yet met with any results.

At this date it has not yet been made known by the office of the Commonwealth Fund what men have been appointed to these fellowships for this year. It is interesting to note that most of the applicants are men who have been recipients of these fellowships in the past.

At the time of the circularizing of the members of the society in January, in connection with the Commonwealth Fund fellowships, requests were included for registration of individuals for the Speaker's Bureau. Fifteen registrations were submitted, and this list has been placed in the hands of the secretary of each county society.

JOHN P. BOWLER,
JAMES W. JAMESON,
HARRIS E. POWERS.

DR. DUNBAR: Your Committee on Officers' Reports recommends that the Committee on Medical Education and Hospitals continue its efforts to widen the eligibility of requirements for the Commonwealth Fund fellowships.

I move the adoption of this portion of our report.

This motion was seconded and was carried.

### *Report of the Committee on Mental and Social Hygiene*

Further progress in the advancement of the program for the eradication of syphilis in the State has been made during the past year. The premarital examination law has been put into effect, and a number of new cases of syphilis have been discovered. The law, however, if not interpreted in each individual case according to its merits, may bring hardships on adequately treated cases with persistently positive blood reactions, where both parties to the marriage contract are well aware of the presence of the infection and are willing to undergo further treatment.

A routine blood examination for syphilis on all patients admitted to all general hospitals in the State is recommended.

The value of fever treatment in neurosyphilis, and also in other types of syphilis, has been established beyond doubt. The State Hospital, in Concord, and the Elliot Hospital, in Manchester, have full facilities for carrying out such treatment under carefully supervised conditions.

During the last year about a dozen patients with active neurosyphilis have been referred to the Manchester Mental Hygiene Clinic from the Venereal Clinic in Manchester. Some of those with mental symptoms have been referred to the State Hospital as voluntary patients; of the others, some refused to enter the State Hospital because they did not feel they were insane. At the same time, they are willing to receive fever treatment in a general hospital, if their hospital bills are paid.

It would, therefore, be advisable for the Board of Health to set aside a certain sum annually to defray the cost of hospitalization for fever treatment, and also for more accurate spinal-fluid studies in such patients.

The State Planning Board has just completed a painstaking analysis of the needs of the State Hospital. It recommends a program of expansion for a number of years.

The need for more adequate outpatient services in psychiatry throughout the State has become more evident. It is hoped that the Department of Probation will see fit to acquire the services of a full-time psychiatrist to take care of the problems in the juvenile courts, the Industrial School and the State Prison.

During the year a number of persons accused of committing capital crimes have been sent to the State Hospital for observation as to the presence of insanity. This procedure is much more satisfactory than the one followed in other states, where the patient is examined by the psychiatrist once or twice in jail.

Much demand has been made upon the time of the staff of the Laconia State School and the State Hospital for lectures before interested groups who are thirsty for information on social and mental hygiene.

In 1937, the House of Delegates passed a resolution recommending that a study be made of the matter of simplification of the sterilization procedure. The sterilization law in New Hampshire is a very good one, and was intended to make sterilization not too easy. For this reason the hereditary factor was made the basic essential. However, we do recommend that provisions be made in the law for sterilization of some who are not necessarily institutionalized. Also it would be helpful, for social reasons, if defective mothers, already with several children who may not show a similar defect, could be sterilized and permitted to be at home again.

A very comprehensive paper entitled "Sexual Sterilization in New Hampshire," by Dr. Simon Stone, was published in the September 17, 1936, issue of the *New England Journal of Medicine*.

CHARLES H. DOLLOFF,
BENJAMIN W. BAKER.

DR. DUNBAR: The Committee on Officers' Reports recommends that the House of Delegates approve of routine blood examinations for syphilis on all patients admitted to general hospitals, and that the Secretary be instructed to notify the hospitals of his state as to the suggestion.

We approve of the change in the sterilization law, and suggest that this matter be referred to the Committee on Public Relations.

We approve of the suggestions regarding fever treatment of neurosyphilis and the study of spinal fluids, and advise referring the matter to the State Board of Health for study and appropriate action.

I move the adoption of this portion of the report.

This motion was seconded and was carried.

### *Report of the Committee on Child Health*

In addition to scheduled meetings, the members of your committee have been in frequent contact for the informal exchange of ideas. We have endeavored to keep in touch with what is being done in other states.

A great deal of attention is currently being given to such subjects as the prevention of contact infections, particularly tuberculosis, by examination of teachers, nursemaids and others coming in contact with children. Also under consideration are the health standards in summer camps, and improvement in the effectiveness of school examinations.

A few of the New Hampshire doctors interested in child health have organized during the past year as the New Hampshire Pediatric Society.

In co-operation with the Division of Maternal and Child Health of the State Board of Health, your committee sent a letter to all members of the Society requesting a list of all crippled children known to them.

Your committee feels that limiting state aid to certain groups of physically handicapped, needy children while withholding it from others is not logical. The most conspicuous omission is probably the group handicapped by cardiac disease.

In regard to lectures on pediatric subjects before county medical societies, which last year the society approved, your committee believes that the State Board of Health is both willing and able to co-operate.

We had hoped to be able to send to each member of the Society a brief summary of immunization procedures, prepared by the American Academy of Pediatrics. This booklet is out of print, but a revision is expected soon. When it does become available, we feel it should be distributed.

We have worked in close co-operation with the director of Maternal and Child Health of the State Board of Health. We have been able to advise on methods of vaccination, on the best preparations and technic of immunizing against diphtheria, on the use of the Schick test, and so forth.

At present we are considering standard procedures for the well-child conferences conducted by the Board of Health. The subject of more widespread tuberculin testing has been brought to the fore recently. One factor in this is that recently there has become available a patch test, which requires no injecting. One member of the committee tried the method this last year, and discovered one active case of tuberculosis.

We feel that it is important for the Committee on Child Health to be continued. New hazards to child health are constantly appearing, as for example, equine encephalitis, which has a high fatality rate when transmitted to children, but which can be prevented from spreading by the vaccination of all horses.

COLIN C. STEWART,
FRANKLIN N. ROGERS,
TRAVIS P. BURROUGHS.

DR. DUNBAR: We approve of the activities of the Committee on Child Health and recommend that this committee be continued.

We recommend that the $50.00 we appropriated a year ago be left with the committee to use in distributing the summary of immunization procedures or other literature that the committee might deem of interest.

We recommend that the committee continue its efforts to broaden the definition of crippled children, so as to include all needing assistance.

I move the adoption of that part of our report.

This motion was seconded and was carried.

### *Report of the Committee on Maternity and Infancy*

The committee has functioned during the past year in the same capacity as in former years. It has carried on an exhaustive study of maternal deaths, and gathered data on infant deaths and stillbirths. This was done in co-operation with the Division of Maternal and Child Health of the State Board of Health.

Five meetings were held during the year. At each meeting a study was made of all the information on each maternal death. The material used consisted of a copy of the death certificate, answers to questionnaires sent to physicians reporting the maternal death, and in most cases information obtained by a personal interview with the physician in charge of the case. Wherever possible the hospital records were checked and studied. In all cases, the patient was known to the committee only by number. All information obtained was confidential.

The maternal mortality, in figures per 1000 live births, in New Hampshire for the last few years is as follows:

| YEAR | RATE |
|---|---|
| 1930 | 6.2 |
| 1932 | 5.4 |
| 1933 | 6.3 |
| 1934 | 5.4 |
| 1935 | 6.1 |
| 1936 | 4.8 |
| 1937 | 4.3 |

Statistics for 1938 are not yet available; the estimated rate is 3.4. In 1937 there were 34 maternal deaths. In 1938 there were 24 maternal deaths reported up to January 1, 1939.

The maternal death rate in New Hampshire for the first five years noted, varied very little, but in the last two years (1936–1937) there was a noticeable drop.

Infant mortality, in rates per 1000 live births, is as follows:

| YEAR | RATE |
|---|---|
| 1930 | 61 |
| 1932 | 58 |
| 1933 | 55 |
| 1934 | 60 |
| 1935 | 54 |
| 1936 | 47 |
| 1937 | 48 |

The infant mortality shows the same downward trend in the last two years.

In comparison with the rest of the United States, New Hampshire is still in the upper ten states for low infant mortality, and in the upper twenty-five for low maternal mortality, falling in about twentieth place.

An analysis shows that the chief causes of maternal death in the series for 1938 were: (1) cesarean sections and complications; (2) toxemias of pregnancy; (3) accidents of labor; (4) other miscellaneous causes. An interesting point is that puerperal sepsis as a cause is not predominant as was the case last year. In analyzing the 6 cesarean sections, it was found that only 2 were performed with any definite indication.

There was a predominance of hospital deliveries in this

series. Of the 24 maternal deaths recorded for 1938 there were 21 delivered in hospitals. One striking finding was the fact that most of the hospital records were very incomplete. The accounts of the delivery itself were found to be very sketchy. Physicians' records of the prenatal care were vague. Most records are kept on small cards, but many physicians keep no records at all.

It was noted that out of the 24 cases only 2 complete autopsies were performed, and 1 partial postmortem examination.

In studying the maternal deaths for this year as before, the committee has attempted to divide them into three categories:

1. Those in which the patient was at fault (1 case).
2. Those in which the obstetrical treatment was apparently inadequate (4 cases).
3. Those of unavoidable deaths (10 cases).

Of the balance, 4 cases were not deemed obstetrical deaths and 5 cases are still unclassified.

A study of stillbirths, which was made entirely from death certificates and answers to a questionnaire, showed that there were 242 stillbirths reported. Questionnaires were sent to 242 physicians and answers were received from all but 35. The leading causes of death in order were: prematurity; toxemia of pregnancy; instrumental delivery; deformity; hemorrhage — premature separation of the placenta.

There seems to be some confusion as to the definition of a stillbirth, since many of the reports for 1938 were for births in the nonviable period.

### RECOMMENDATIONS

Obstetric cases should be cared for in separate departments and delivered in rooms used only for that purpose, with special rooms for isolation of all infected cases; caps, masks, and sterile gloves and gowns should be worn at all deliveries; in the case of hospitals, special apparatus for resuscitation and meeting hemorrhages should be available; high forceps should be eliminated entirely; mid forceps should be eliminated so far as possible; and forceps should be used on cases only when the head is on the perineum. Vaginal examinations during labor should be replaced by rectal examinations.

Cesarean sections should be elective only and consultation should be held on all cases before operating. In addition it is recommended that the consultant be a physician qualified to practice and specialize in obstetrics. It is further recognized that the treatment of obstetrical cases is a definite specialty.

Samples of blood for Wassermann tests should be taken on all prospective mothers as soon as they come under treatment.

In the analysis of the 4 cases of toxemia it was found this year that there is much confusion as to the meaning of the Stroganoff treatment versus a modified type of such treatment. In all but 2 cases the treatment described for toxemia was not only vague but grossly inadequate. The main principles of the treatment consist in sedation, dehydration and, when necessary, cardiac stimulation. As a routine simple treatment, the following is recommended:

Absolute quiet.
Sedation — a barbiturate.
Concentrated magnesium sulfate and glucose intravenously. The dose should be regulated according to the needs of the individual case.
Rapid digitalization in all cases with convulsions or threatened with convulsions. For the average patient, a total dose of 20 to 25 gr. should be given within twenty-four hours.

This treatment is a combination of the Stroganoff treatment (sedation) and the Dublin treatment (elimination and dehydration).

The committee feels that there is no condition in obstetrics where an accouchement forcé is justified.

The committee recommends the following minimum standards for delivery room technic:

1. That all personnel coming in contact with the patient in the delivery room or following delivery be carefully masked at all times.
2. That admission throat cultures be taken on all patients at the time of admission, in order that the occasional streptococcus carrier may immediately be isolated.
3. That all nurses and floor maids be cultured at least every week when in the maternity ward.
4. That only such nurses be used for relief on the maternity ward as have previously had negative throat cultures.
5. That enemas be used at the time of admission only in such cases as it may seem necessary and not as a routine.
6. That rectal examinations be used by the doctors in preference to vaginals.
7. That the nurses pay the strictest attention to keeping the patients' bladders empty.
8. That it be strictly forbidden for nurses to leave the room for any reason after the patient has been given barbiturates.
9. That dry preps of the vulva and perineum be used in preference to wet preps, either by painting or spraying.
10. That draping of the patient be done with a large sheet plus a V-set rather than with towels.
11. That nurses and doctors in the delivery room wear sterile gowns, masks and gloves, and that the gloves be dry sterilized rather than boiled.
12. That the strictest care be observed that nurses shall report the earliest sign of any respiratory infection in themselves and that no nurse shall return to duty on the maternity ward following an illness until she has had a negative throat culture.

The committee deplores the practice of nurses caring for surgical cases being in attendance to obstetric cases unless a period of time has elapsed between cases allowing for negative throat cultures and for complete bathing and scrubbing.

It is recommended that infected or ill cases at delivery be isolated from the other obstetric patients, and that in the event of delivery, such be accomplished in an isolated delivery room.

It is recommended that isolation facilities be available in the nursery where ill or infected babies may be cared for separately from the well infants.

The committee deplores the hiring of lay persons to attend obstetric patients in the home.

The committee deplores the attitude of some physicians who object to public-health nurses' doing prenatal work.

The purpose of these studies is entirely educational and is aimed at aiding the individual physician in his problems as well as the many mothers who needlessly die each year in childbirth.

Benjamin P. Burpee,
Chester F. McGill,
Robert O. Blood.

DR. DUNBAR: The Committee on Officers' Reports recommends the suggestions of the Committee on Maternity and Infancy. We further recommend that members of the Society work for the adoption of its proposals in local hospitals.

I recommend the adoption of this part of our report.

This motion was seconded and was carried.

*Report of the Committee on Tuberculosis*

The phenomenal progress which has been made during the past thirty-five years in the control of tuberculosis presents a challenge for its ultimate eradication. Still the leading cause of death in the most productive years of the lives of the people of New Hampshire, its speedy eradication is of paramount importance.

That the medical profession of the Nation is determined to wage an increasingly effective campaign against tuberculosis is seen in the setting-up of committees on tuberculosis by most of the state and many of the county medical societies.

In this connection it is of some gratification to know that the Committee on Tuberculosis of the New Hampshire Medical Society is perhaps the oldest, and is assuredly one of the oldest, among the state medical societies, having been authorized in the year 1914.

It is now possible to admit patients to our sanatoriums within a reasonably short period of time after application. However, a nurses' home is desperately needed at the New Hampshire State Sanatorium. Also funds are sorely needed for chest surgery, particularly thoracoplasty operations.

During the year, members of the society throughout the State have increasingly availed themselves of the services of the New Hampshire State Sanatorium and the New Hampshire Tuberculosis Association in the interpretation of chest x-ray films.

We continue to urge that the members of the society avail themselves of the invaluable assistance of the chest x-ray. We urge an x-ray of the chest in any case of otherwise unexplained loss of weight and fatigue, even if cough, expectoration, hemorrhage or fever is not present. We also continue to urge more and more sputum examinations and particularly series of sputum examinations in all cases of patients who are raising sputum.

We urge on members of the society that they arrange for the tuberculin testing of all members of the family who have been in contact with an "open case" of tuberculosis. We urge that all "positive reactors" have the additional advantage of an x-ray of the chest to determine the extent of possible injury to the lungs.

In addition to its state-wide search for tuberculosis, through its regular diagnostic clinic service, the New Hampshire Tuberculosis Association has maintained a supplementary case-finding service through the tuberculin testing of thousands of children in the high schools of the State. Also, through search in the homes of the "positive reactors," it is possible to find the spreaders of the tuberculosis germ. For the most part, Purified Protein Derivative (P.P.D., first strength) tuberculin injected intracutaneously (Mantoux test) is the method of procedure in this program. However, the association is using the patch test of Vollmer, prepared by Lederle and Company, in the tuberculin testing of contacts coming into the regular diagnostic clinics.

In this connection a study of the comparative effectiveness of the P.P.D. and patch tests was made by the association in the spring of 1938 in eleven high-school groups. A total of 1455 pupils were tested. The site for the Mantoux test was cleansed with alcohol, and for the patch test with acetone; P.P.D. (first strength, 0.1 cc.) was injected in the right forearm, and the patch test was applied carefully on the left. Most of the reactions obtained by the patch tests were sharply defined. Some showed slight blistering in the more pronounced reactions. It was noteworthy that in a few cases the patch test did not become positive until five to seven days after the removal of the patch. In practically all cases the patch-test results ran parallel with those of the intracutaneous test. In the 1455 children, 212, or 14.5 per cent, gave positive reactions by the two tests.

ROBERT B. KERR,
ROBERT M. DEMING,
JOHN D. SPRING.

DR. DUNBAR: The Committee on Officers' Reports recommends that all members of the Society bear in mind the results that may be obtained if all assist in carrying on the good work being done by those who are especially interested in tuberculosis.

I move the adoption of this part of our report.

This motion was seconded and was carried.

*Report of Necrologist*

1938

| NAME | PLACE OF DEATH | DATE |
|---|---|---|
| Melvin P. Badger | Manchester | April 23 |
| John W. Bowler | Hanover | December 27 |
| Charles B. Drake | West Lebanon | April 2 |
| William Hale | Kingston, Rhode Island | March 30 |
| George E. Leete | Concord | February 22 |
| William H. Nute | Exeter | August 18 |
| Frank A. Smith | Lebanon | April 24 |
| Joseph Theriault | Montreal, Canada | May 9 |
| Russell Wilkins | Manchester | July 22 |

1939

| | | |
|---|---|---|
| Ralph H. Barker | Derry | March 21 |
| Roscoe G. Blanchard | Dover | January 12 |
| Alpha H. Harriman | Laconia | May 30 |
| Alfred A. Macleay | Manchester | June 1 |
| Guy D. Tibbetts | Antrim | June 2 |
| Charles A. Weaver | Manchester | March 6 |

HENRY H. AMSDEN.

DR. DUNBAR: I move the acceptance of the report of the Necrologist.

This motion was seconded and was carried.

DR. EDNA WALCK: I present for affiliate membership two names from Strafford County: Joseph H. Richard and Louis L. Gilman.

DR. GEORGE C. WILKINS: I move that Dr. Rich-

ard and Dr. Gilman be made affiliate members of the Society.

This motion was seconded and was carried.

SPEAKER DYE: Is there any other business?

DR. COBURN: I have a letter from the Bureau of Legal Medicine of the American Medical Association concerning the Wagner Bill. I believe we should draw up a resolution about it.

SECRETARY METCALF: There are many groups in the State that would be glad to have a talk or a debate on such a subject. If we had a few men who would make a definite study of the Wagner Bill they could probably spread a good deal of information about it.

DR. SMITH: I move that the Secretary be requested to write a letter to the secretaries of the various county societies, following out this suggestion.

This motion was seconded and was carried.

SPEAKER DYE: Are there any more candidates for affiliate membership?

DR. DUBE: I propose the name of John Z. Shedd, of North Conway, for affiliate membership.

This motion was seconded and was carried.

SPEAKER DYE: Is there any further new business?

DR. DUBE: In 1941, the New Hampshire Medical Society will be one hundred and fifty years old. It has been suggested that the President appoint a committee to formulate plans for the observance of this anniversary. I make that a motion.

This motion was seconded and was carried.

SPEAKER DYE: Is there any further business to come before this meeting? If not, a motion to adjourn is in order.

DR. E. M. FITCH: I move that we adjourn until 8:30 tomorrow morning.

This motion was seconded and was carried.

Whereupon, the first meeting of the House of Delegates was adjourned at 10:45.

# CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTEMORTEM AND POSTMORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

## CASE 25311

### PRESENTATION OF CASE

*First Admission.* An eleven-year-old boy was admitted complaining of severe headache, vomiting and occasional hematemesis.

Two years before entry the patient's head was struck against a board as a result of which he was dazed but not unconscious. He remained in bed during the afternoon but was much better the next day. From this time on he complained quite often of being tired. His parents noticed that he occasionally suffered from "dazed spells." For the last year and a half he had staggered and seemed unable to walk straight. He complained of shortness of breath and of severe headaches in the morning which grew milder toward evening. There was frequent vomiting, which gradually increased until at entry he vomited practically everything ingested. All his symptoms had increased during the last month. Puffiness of the eyes developed, but there was no swelling of the legs. He complained of pains in the legs and over the heart and also of blurred vision.

The patient was one of twins; the other twin was stillborn. His birth was otherwise normal. The mother had later had one miscarriage. He developed normally during infancy. At the age of five years he had had whooping cough, at six years chickenpox and at seven years measles. His past history and family history were otherwise noncontributory.

Physical examination showed a well-developed and nourished boy in no distress. There was a definite left internal strabismus. The pupils were dilated but reacted to light and distance. There was definite choking of both disks, slightly more on the left. The teeth were carious, the tonsils and pharyngeal mucous membranes moderately injected. The lungs were clear, the heart normal. Examination of the abdomen was negative. Neurological examination showed slight facial weakness on the right. There was a tendency to past point to the right. The Romberg was negative. He walked unsteadily, waveringly and not in a straight line. There were slight tremor and weakness of the extremities and of the tongue. Movements in bed were unco-ordinated and uncertain. There was a positive Kernig, but no clonus and no Babinski. The knee jerk was active on the left at first but could not be elicited again. The right knee jerk was absent, and no ankle jerks were obtained.

The temperature was 99°F., the pulse 60, and the respirations 20.

Examination of the urine was negative. The blood showed a red-cell count of 6,160,000 with 100 per cent hemoglobin, and a white-cell count of 5300 with 74 per cent polymorphonuclears. A blood Wassermann test was negative. A Schick test was negative. A 1:1000 tuberculin test was negative.

X-ray films showed unusually prominent convolutional markings throughout the skull. The changes were more marked in the frontal region. The suture lines were wide. There were no areas of increased density in the brain. The sella turcica was not definitely abnormal, although it was rather deep and its outline a little hazy.

On the seventh hospital day a combined ventricular and lumbar puncture was done. The initial ventricular pressure was 600 mm. of water, which was brought down to 200 mm. before the lumbar region was tapped. There was evidence throughout the operation of a slight degree of dynamic block, there being a difference of from 30 to 40 mm. of pressure in the two regions on all readings. On jugular compression there was a prompt rise in the ventricles from 250 to 350 mm. and in the lumbar region from 220 to 260 mm. There was a somewhat more rapid fall in the ventricles than in the lumbar region on release of pressure. Withdrawal of fluid from either locus caused an equal drop in pressure in each manometer. The final pressure in the two loci was about 200 mm. The spinal fluid from the lumbar tap contained 580 red cells and 7 white cells per cubic millimeter; it showed a total protein of 48 mg. per 100 cc., sugar 73 mg., and chlorides 734 mg. The gold-sol test was 0135511100. The ventricular fluid showed 97 red cells and no white cells per cubic millimeter, a total protein of 8 mg. per 100 cc., a sugar of 88 mg., and chlorides of 741 mg. The gold-sol test was 0000000000.

The patient did very well following the combined puncture. On the tenth hospital day a cerebellar exploration was done. The vermis was found to fuse with the left cerebellar hemisphere. Tapping of both cerebellar hemispheres yielded nothing. There was no evidence of a fourth-ventricle tumor. No tumor could be seen anywhere, but there was a definite abnormality in the size and relation of the vermis to the left cerebellar hemisphere, a finding which was believed to be indicative of a deep left cerebellar tumor. It was considered unwise to explore further. The patient

improved slightly after the operation. On the twenty-seventh hospital day x-ray therapy was begun. He was discharged to the Out Patient Department.

*Second Admission* (fourteen years later). The patient had been quite well until one year before his second admission, at which time he began to have severe throbbing headaches in the occipital region. These usually came on early in the morning, often awakening him, disappeared in the afternoon and were relieved by lying down. Soon after onset they disappeared and were absent for two months. About six months before entry he began to have momentary bouts of unsteadiness while walking, appearing as often as ten times a day. He staggered and occasionally collided with objects at his side. He did not know whether he staggered more to one side than the other. These symptoms gradually increased until entry. For several months he was troubled with diplopia. Occipital headaches began to occur again about six weeks before admission. These seemed to be worse on the right. There had been no nausea or vomiting, and no disturbances of vision other than diplopia. There was no clumsiness of hand movements except that those on the left were markedly slower than those on the right. He had noticed no definite ringing in the ears. He had slept, exercised and eaten regularly. There had been no accidents or injuries since he had been discharged fourteen years previously.

Physical examination showed a well-developed and nourished young man in no distress. The general physical examination was negative. The blood pressure was 110 systolic, 75 diastolic. Neurological examination showed that the patient was calm, fairly intelligent and co-operative. There was slight ataxia with veering to the left on walking. There was a slight but obvious inaccuracy in approximating the left finger to the nose, with moderate wavering of the finger. Skilled movements of the left fingers were slow and inaccurate. There was past pointing and adiadokokinesis of the left side. Examination of the fundi showed slight blurring of the disk margins and marked tortuosity of the vessels with moderate dilatation of the veins. There was slight weakness of the right lateral rectus muscle. Diplopia was present with the eyes at rest, was increased on looking to the right, and was unchanged on looking to the left. Nystagmus was evident on looking to the left. The vision was 20/20 on both sides. Visual fields showed slight enlargement of both blind spots, more marked on the right. The deep reflexes were present and equal on both sides. Muscular strength was good. No other neurological abnormalities were noted.

The temperature was 99°F., the pulse 80, and the respirations 20.

Examination of the urine was negative. The blood showed a red-cell count of 4,760,000 with 85 per cent hemoglobin, and a white-cell count of 5300 with 75 per cent polymorphonuclears. Two blood Hinton tests were negative. A spinal-fluid Wassermann was weakly positive. A lumbar puncture showed an initial pressure of 270 mm., which fell to 190 mm. after removal of 10 cc. of fluid. The fluid was clear and colorless. There were no cells. The total protein was 138 mg. per 100 cc., the sugar 73 mg. The gold-sol test was 1231000000. A stool examination was guaiac negative.

X-ray films of the skull showed a large bone defect in the occipital area, with clips in place. There were multiple areas of calcification scattered throughout a round area which measured approximately 3 cm. in diameter and lay to the left of the midline in the occipital region. The convolutional markings were increased. The floor of the sella was slightly decalcified. The sella appeared to be slightly wider than normal. There were several fragments of bone visible in the soft tissues of the neck, and a soft-tissue mass there apparently due to bulging brain substance.

On the eleventh hospital day an operation was performed.

## Differential Diagnosis

Dr. Donald Munro:* It is evident, it seems to me, that at the first admission this patient was suffering from an acute rise in intracranial pressure — that was apparently the impression of the men who had charge of him — and further that the findings of the combined lumbar and ventricular taps were sufficient to warrant a presumptive diagnosis of cerebellar tumor. There are, however, points to be discussed before making a more detailed diagnosis.

I am not at all clear about the birth history. The only statement is that he was one of normal twins. It is notorious that twins are particularly subject to birth injury and have more difficulties on that account than children not born at a multiple pregnancy. It is then stated that the patient developed normally during infancy. No details, however, are given as to the first part of his infancy. I should like to know, for example, how well he nursed, whether his actions were quite up to those of the usual child, what his cry was like immediately after birth, and so forth. It seems to me that this child might have sustained an intracranial injury at the time of his birth. If

*Assistant professor of neurological surgery, Harvard Medical School; surgeon-in-chief of neurological surgery, Boston City Hospital.

he had, could it have been one that would have caused the degree of increased intracranial pressure that he showed? In an eleven-year-old boy a pressure of 600 mm. in the ventricle is, of course, enormous. It is possible — but unlikely — that the cause might be a birth injury. I have seen patients with subdural hematomas that have presented sufficiently few symptoms at the time of birth so that the development has been considered within normal limits. Later a considerable hydrocephalus, with a slight degree of increased intracranial pressure, was found to be present. I must say though that the pressure is usually not so high as it was in this particular case.

The spreading of the sutures seems to me to be an important observation. Bailey gives the year of closure of the sutures as nine. Dwight, on the other hand, in *Piersol's Anatomy* says that sutures do not close until the twenties and thirties. There is an obvious discrepancy there, explained by the fact that Dwight is referring to a solid bony closure, and Bailey to a closure that does not imply actual bony union. To spread the sutures as much as they have spread here, the intracranial pressure must have been high for a long time. It is on that account that I do not believe that the history of injury to the patient's head can be accepted as of great significance. Any other cause for his symptoms at that time must also account for the long interval between the first and second admissions which was characterized by freedom of symptoms. I do not believe that a birth injury would act in this way. I think he had a tumor, but the evidence at the first admission does not make that certain.

At operation, which was done on the tenth hospital day of this admission, a cerebellar exploration was done. The vermis was found to be questionably abnormal. The question arises whether the findings were sufficient to rule in tumor. The commonest cerebellar tumors in children are the midline astrocytoma and medulloblastoma, with hemangioblastoma, ependymoma and a few others in decreasing order of frequency. I believe it may be impossible to rule out a midline cerebellar tumor in a child unless the vermis is split. I take it that it was impossible to split the vermis in this instance and, therefore, so far as the evidence goes from this operation, the tumor may or may not have been there except insofar as the diagnosis is supported by the history and the other findings. Also, in the first admission no note is made as to how much x-ray therapy was given. At the second admission it was noted by x-ray: "There were multiple areas of calcification scattered throughout a round area which measured approximately 3 cm. in diameter and lay to the left of the midline in the occipital region." I am not clear what the difference is between occipital area and occipital region. The occipital region is notoriously the source of argument and error between x-ray men and clinicians because of the reference not only to the occipital lobe but also the occipital bone, which does not cover the occipital lobe, of course.

A problem to settle in relation to this patient is to decide whether he had one lesion or two. If the latter, we have to assume a tumor or a birth injury at the first entry, with the tumor's having recovered completely by virtue of the x-ray therapy as well as the decompression effect of the operation, or the birth injury's having come to a standstill and ceased to cause trouble. In addition, we must assume that another lesion which was not present at the first entry developed in the interval and was present at the second. That is quite possible of course. It seems unlikely, however, and I think for a starter one might as well admit that this is all one disease. If that is so, the disease, at the last admission, was obviously intracranial as evidenced by the symptomatology, the lumbar puncture, the cerebrospinal fluid and the findings such as they were at the first operation.

I believe we can rule out sepsis, congenital defects and any ordinary systemic disease, such as syphilis or tuberculosis. Injury at birth is not a factor because if this is to be interpreted as an injury, we must assume a different course than the one that the patient presented. I therefore believe that this patient when he first came in had a tumor in the cranium and at the second admission the tumor was still there. The problem then arises as to whether it was subtentorial or supratentorial. Obviously, it was subtentorial. Not only the x-ray evidence but the clinical findings are in favor of that. This is particularly true about the start of the history, which, in brief, is one of morning headaches with vomiting, in a child with choked disks. That is almost pathognomonic of subtentorial tumor in a child.

The x-ray films taken at the second admission contain essential information, and if it is permissible, I should like to have a roentgenologist interpret them for me.

Dr. James R. Lingley: By occipital region, we mean in this case the posterior fossa. Over the left lobe of the cerebellum you see the operative defect; the occipital bone shows complete union of the sutures, but there is some convolutional increase and slight increase in pressure. There is slight decalcification of the posterior clinoids with slight erosion. Here you see the calcified mass well below the tentorium; you can very faintly make it out just to the left of the midline. The

calcification is in small, rather smooth particles grouped together to form a mass of moderate size.

DR. MUNRO: Is it attached to the bone?

DR. LINGLEY: I cannot make out any bony attachment.

DR. MUNRO: It lies free in the posterior fossa?

DR. LINGLEY: Yes.

DR. MUNRO: That is distinctly helpful. In view of that and the rest of the information, I am convinced that this is one lesion. That being so, the time of onset must have been previous to his ninth year, because he had his first symptoms at nine years and presumably whatever caused these symptoms was in existence for a short time earlier. Furthermore, the x-ray provides evidence that tumor is present, at any rate at the second admission. If we assume that it was one disease, the tumor must have been present at the first admission, too. The lesion is an expanding one. That is evidenced by the spreading sutures, by the scalloping, by the changes in the sella and, on the second admission, by the bulging of the occipital decompression which is described in the x-ray report. High intracranial pressure was also present. There was, however, an interval of apparent nonexpansion for a time. This may have been due to the decompression effect of the operation, to the x-ray therapy, possibly, in part at least, to a cerebrospinal-fluid block, and undoubtedly to the slow growth of the tumor.

The question of location within the posterior fossa is settled by the x-ray findings. The tumor is to the left of the midline.

What type of tumor may this be? I feel very strongly that it is worse than useless from the therapeutic point of view to speculate preoperatively as to the type of brain tumor. All who do this work have been led astray by the assumption that if the patient has a certain history, he must have a favorable or an unfavorable type of tumor. Therefore, the speculation as to the kind of cell that makes up a suspected tumor is rather an academic issue and is at best merely a matter of guesswork. There are certain tumors, however, that characteristically occur in children. These are the intracranial dermoids or epidermoids known as cholesteatomas, the blood-vessel tumors, the cerebellar astrocytomas and ependymomas, and the subdural hematomas. I should eliminate the medulloblastomas, although there have been long survival periods — up to seven years — in patients with such tumors. It seems to me, however, that fourteen years is too long to permit one to assume that this patient is suffering from a medulloblastoma. Pharyngiomas occasionally gravitate down in front of the tentorium through the incisura and may cause symptoms much like these. Papillomas and chordomas have long histories. The commonest calcified tumors are the dermoids, better known as cholesteatomas, which they are not. The dermoids usually start in the recess or lower end of the fourth ventricle. I believe that if this child had had a dermoid, it should have been visible at the first operation, making the diagnosis unquestionable at that time. I think the dermoids can be ruled out on the evidence. A subdural hematoma can also be ruled out because of the history and the lack of characteristic findings by x-ray. The blood-vessel tumors, however, are another story. Such tumors frequently start in the vermis, which as you know was not opened at the first operation. They also may start at the posterior end of the fourth ventricle as well as in the hemispheres. This latter location would correspond to the site of the calcification in this case. Blood-vessel tumors, however, calcify only rarely in the cerebellum, but they are acted on by x-ray therapy, which, if this were such a tumor, might explain the intermission during which the patient was well. I think that this might be a blood-vessel tumor. Cerebellar astrocytomas start in the vermis, calcify only infrequently and do not react to x-ray therapy. It is conceivable that this might be the calcification of an astrocytoma. However, I think it is unlikely and believe astrocytoma can be ruled out. An ependymoma which has started under the vermis in the floor of the fourth ventricle is usually not visible when small, unless the vermis is split. This tumor calcifies frequently, reacts favorably to x-rays and is characterized by spreading laterally from the midline position. It seems to me to be the best guess relative to the type of tumor from which this patient suffered. My diagnosis then, is a tumor of the posterior fossa which started in childhood, which was not delimited at the first operation and which was present at the time of the second operation as a calcified mass to the left of the midline and which was probably an ependymoma.

DR. HENRY R. VIETS: When the patient was first in the hospital, fourteen years ago, at the age of eleven, two questions were considered: Could the disease be traumatic? Was it due to brain tumor? In regard to trauma, there was some evidence that trauma might have occurred at the time of birth. It was felt, however, that the period of nine years subsequent to birth, before symptoms came on, did not justify a diagnosis of trauma from cerebral injury during delivery. Secondly, there was the history of an accident two years before entry, but this also did not satisfy us as the cause of his symptoms at that time. The

diagnosis most seriously considered, therefore, was brain tumor. The symptoms located this lesion in the cerebellar fossa, and medulloblastoma was thought to be the most likely type of tumor. The main reasons for this were the location of the tumor in the cerebellum, the frequent vomiting, which indicated that the tumor was probably in the midline, involving the vermis of the cerebellum, and the age of the patient. Medulloblastoma is the most frequent cerebellar tumor in children, it is always in the midline, and vomiting is a constant symptom. The operation, however, did not disclose a tumor, although the vermis was abnormal; the tumor was probably present but not found. X-ray study had already indicated that the tumor was of some years' duration.

On the second admission, fourteen years later, the evidence for tumor was more definite: there were cerebellar signs pointing to some dysfunction of the left cerebellar lobe; the brain was protruding at this point; and x-ray films disclosed a calcified mass lateral to the midline and on the correct side.

Considering the duration of the tumor, its location and the patient's age, it was then believed that the most likely type of tumor was astrocytoma. Astrocytomas occur frequently in the cerebellum; they begin early in life, although they may not disclose themselves until the patient is an adult; they are practically always lateral and not in the midline; and they seldom involve the cranial nerves, as was the case here. Therefore the patient had evidence of cerebellar tumor with typical signs and the usual duration of symptoms. It was expected that the astrocytoma would be successfully removed, and the prognosis, in general, was favorable. There was nothing to indicate whether the astrocytoma was cystic or solid, although the calcification pointed more to a solid tumor.

### Clinical Diagnosis

Astrocytoma of left cerebellum.

### Dr. Munro's Diagnosis

Cerebellar ependymoma, left hemisphere.

### Anatomical Diagnosis

Astrocytoma of left cerebellar hemisphere.

### Pathological Discussion

Dr. Charles S. Kubik: Dr. John S. Hodgson operated and removed a tumor, an astrocytoma, measuring 7.5 by 5.5 by 3 cm., from the left cerebellar hemisphere. It was a firm, discrete mass, and I believe that all of it was taken out. There are two unusual features: an old organized hemorrhage and numerous calcareous concretions. I have not seen calcification in any other case of cerebellar astrocytoma but have seen it in one or two cases of cerebral astrocytoma. The cerebellar tumors of this type usually become cystic, and so give rise to symptoms before the tumor itself is very large or, presumably, as old as this one.

Dr. Tracy B. Mallory: This patient is still in the hospital convalescing. What would you hazard as to the prognosis?

Dr. Kubik: If he is all right now I think the prognosis is very good.

Dr. Viets: It is the most favorable type of glioma. He ought to do excellently. You would expect practical cure in a case like this.

Dr. Munro: I should say "cure."

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## CASE 25312

### Presentation of Case

A seventy-one-year-old American engineer entered the hospital with the complaint of swelling in the right popliteal space.

One year before entry he first noticed a small tumor in the right popliteal space which was about the size of a walnut. For the next ten months it remained about the same size, but two months before entry began to increase in size, growing steadily up to the time of entry. He had no pain or other symptoms until a week before entry when, while kneeling, he suddenly experienced a sharp pain in the region of the mass. The pain subsided somewhat after a short time but persisted as a steady dull ache up to the time of entry. For several years he had had some edema of his ankles, but during the week before entry his right leg had become more swollen than ever before, and for the first time had a bluish discoloration.

Thirty years before entry he was said to have had a heart attack and was treated with digitalis. There were no subsequent attacks, but he did have moderate dyspnea on exertion. His past and family histories were otherwise not contributory. He thought that he might have lost some weight in the previous six months.

Physical examination revealed a rather thin but fairly well-developed man apparently in quite good health. The heart was somewhat enlarged downward and to the left, and there was a harsh systolic murmur at the apex. The pulse was slightly irregular, and the blood pressure was 180 systolic, 125 diastolic. The lungs and abdomen were normal. There was some edema of both legs, more marked on the right, which disappeared during the course of a few days in bed. In the right popliteal space there was a firm, nonpulsating

tumor measuring about 10 by 7 by 7 cm., which appeared to have several cystic areas on its surface. It was not attached to the femur but seemed to be connected with the hamstring tendons.

The temperature was 98°F., the pulse 60 and the respirations were 20.

The urine examination was negative. The blood showed a red-cell count of 5,400,000 with 80 per cent hemoglobin, and a white-cell count of 8700. The blood Hinton test was negative. The nonprotein nitrogen was 35 mg. per 100 cc.

X-ray films of the right knee showed a large rounded soft-tissue tumor in the upper part of the popliteal space. It was slightly more dense than the soft tissues. Its margins were indefinitely defined, and it extended into the subcutaneous tissues. The arteries in the region showed no calcification, and there was no evidence of disease of the bone or joint. An x-ray film of the chest showed a definite increase in the supracardiac shadow, apparently due to tortuosity of the aorta. In the oblique view the aorta was visible throughout the greater part of its course, and although very tortuous, it did not appear to be dilated. The heart shadow was increased to the left, and the curve of the left ventricle was prominent.

An operation was performed on the fourth day.

## Differential Diagnosis

Dr. Clifford C. Franseen: With a mass of this type in the popliteal space the first thing that comes to the minds of most of us is a popliteal aneurysm, and it was obviously also in the mind of the examiner, if we are to judge by the findings that he recorded. One physical finding that we should be most interested in knowing about in differential diagnosis of such a mass is the presence or absence of a bruit, but nothing is mentioned about it. I think we must assume it was listened for and was not present. It is more than likely that he would have had more difficulty with the circulation of his extremity had this been a popliteal aneurysm, and in view of his relatively good cardiovascular condition and the absence of calcification in the arteries in the region, together with a negative Hinton test, the diagnosis of popliteal aneurysm is still further placed in doubt. In considering the sudden sharp pain in the region of the mass on kneeling, partial rupture of an aneurysm and subsequent thrombosis might be considered, but the same sharp pain might be experienced on sudden compression of any mass in this region. If partial rupture and thrombosis had occurred he would certainly have had more symptoms and signs and more difficulty with the circulation of his extremities than is mentioned here.

By reason of compression of the nerves and vessels in this limited space, any mass in the popliteal space might give symptoms such as the dull ache of which he complained. It might also give him some edema of the legs. The problem, therefore, becomes largely one of differential diagnosis of tumors which may occur in the popliteal space. It must be remembered that any mass in this location may give the impression of being cystic because of the character of the overlying fat in this region. Therefore, in our differential diagnosis we must consider solid tumors which may have given the examiner the impression of being cystic and once-solid tumors in which degenerative areas may have appeared to produce a cystic feeling. Lipomas may give the impression of being cystic. The soft areas in a fibromyxoma similarly may feel cystic. Other solid tumors which must be considered are the fibrosarcomas of fascial, periosteal or joint-capsule origin and also those of neurogenic origin. The xanthomatous giant-cell tumors of tendon-sheath origin must also be included. If, however, we have complete confidence in the examiner and accept his statement that the mass had several cystic areas on its surface we must consider tumors which are primarily cystic. Among these a popliteal cyst is perhaps the most frequent. This is usually of the form of a hyperplastic bursitis arising from the bursa between the semimembranosus and gastrocnemius muscles. It may or may not connect with the knee joint. In this group are also included the posterior hernias of the joint capsule because it is believed by some observers who have made careful anatomical investigations that these popliteal cysts communicate with the knee joint. A ganglion must also be considered, for it is possible that many of the ganglia so diagnosed have actually been popliteal cysts of the type previously mentioned.

Another tumor which may at times be cystic is a synovioma. Although this tumor is relatively rare, a number of reports have appeared in recent years. They frequently have multiple cystic areas in them and may show a bluish discoloration over the tumor, as was suggested by one descriptive note in this case. These tumors metastasize to the lungs with great regularity, and if the chest plate had shown metastases we could favor this diagnosis even more strongly. In the x-ray film of the soft tissue of this region it was stated that the margin was indefinitely defined and that the mass extended into the subcutaneous tissues. This suggests that there had been some invasion by the tumor and does not quite fit with a popliteal cyst, which should have a well-defined outline. Moreover, a popliteal cyst would have a single cavity and it was stated here that there were several cystic areas on examination. Synovi-

omas usually appear at an earlier age than holds in this case, but among the reported cases there are at least two in the seventies. Putting everything together, therefore, I should favor first a diagnosis of synovioma; in spite of its rarity, it fits best with the description given. My second choice would be a popliteal cyst.

Dr. Channing C. Simmons: Is neuroepithelioma a synonym for synovioma?

Dr. Tracy B. Mallory: In my estimation, yes; but not everyone would agree with me on that.

Dr. Simmons: I think that ought to be considered.

A Physician: How about endothelioma?

Dr. Mallory: Endothelioma used to be a very popular diagnosis for a great variety of tumors. We have not made that diagnosis in this hospital in eleven years and have felt not the slightest need to make it. It is easy to imagine, however, that synoviomas might more readily be called endotheliomas than would be any other tumor, because they do contain spaces lined with a layer of cells which is suggestive of endothelium.

### Preoperative Diagnosis

Fibrosarcoma of right popliteal space.

### Dr. Franseen's Diagnoses

Synovioma?
Popliteal cyst?

### Anatomical Diagnosis

Synovioma.

### Pathological Discussion

Dr. Mallory: This was quite a large tumor, very soft, and even after removal felt cystic on external palpation, but when it was cut into, no cyst of any significant size was found and its fluctuant character was simply due to its myomatous consistence. Microscopic examination showed the characteristic picture of a synovioma, a combination of two types of cells, one which is cuboidal and might be considered either epithelium or endothelium, according to one's prejudices, the other a smaller cell which is somewhat spindle-shaped. This type of structure has been regularly found in the tumors that have been reported as synoviomas; but an absolutely identical structure has been found in tumors unconnected, so far as can be made out, with joint spaces and arising apparently from peripheral nerves, and the name neuroepithelioma has been given to those. That was the original diagnosis we made on this case, though I have no doubt that the majority of pathologists would call it synovioma. After all, I believe they are synonyms.

This case is a little unusual in that, although the location in the popliteal space is characteristic, the age is quite unusual. They are ordinarily tumors of young people. This is the only case we have appearing in an individual of relatively advanced age. It proved, as they usually do, to be a highly malignant tumor. It recurred in eight months, in ten months there were pulmonary metastases, and the patient died within a year.

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## ADVERTISING AND THE LEARNED PROFESSIONS

Advertising by the members of the so-called learned professions is becoming a problem of great social importance, but before a satisfactory solution can be reached there is needed a clear conception of just what constitutes proper advertising and in just what lies advantage or disadvantage to the public. Furthermore, what are the learned professions? There is also a problem involving possible advantage or disadvantage to the advertiser.

One finds advertising by physicians characterized as proper or improper, sometimes as ethical or unethical. The publicity which some physicians give themselves by ostentatious attendance at medical meetings, discussion of papers on all possible occasions, writing and reading papers with little scientific or literary value whenever a periodical will print or a society will listen, even writing a book if a publisher can be persuaded to make a new venture, is quickly recognized and generally indulgently condoned by fellow members of the profession, some of whom may perchance feel a little envious if they do not themselves possess the needed gifts. This is considered legitimate advertising, and if, through overfull measure or advertence on the part of the physician, some knowledge of it escapes to those outside of the profession, generally little harm is done. It is advertising specifically directed to the non-professional that is usually considered unethical, and the medical profession has been fortunately rather free from this reproach, some flagrant exceptions serving but to bring out more clearly the restrained practice of the great majority.

Restriction of advertising by legal enactment has been justified usually on the ground that deception or tendency to deception is against the public interest and in commercial fields such restrictions are widespread. A Massachusetts statute goes much farther than this, however, in the case of one of the learned professions, namely dentistry. The statute denies "to a registered dentist, not merely the use of dishonest or deceptive advertising, but also the right to seek patronage through advertising, in modes deemed harmless and right when employed in commercial business." The constitutionality of this statute has recently come before the Massachusetts Supreme Judicial Court for consideration.

The specific provisions of the statute are summarized in the opinion* written by Justice Lummus as follows.

> The essence of the statute, so far as relates to the five counts, is that "no registered dentist, person practicing dentistry or dental hygienist" shall "include or permit or cause to be included" in any manner of advertising, "any written or spoken words or statements of a character tending to deceive or mislead the public," or "claiming . . . the performance of painless operations of a dental or oral surgical nature," or "tending to solicit patronage for his business, services, advice or products," or "advertising to use any system of anesthetics without truly and accurately naming the same"; neither shall he "make or set forth any promises, guarantees, offers, inducements, representations, statements or rewards of a character tending to influence, persuade or induce persons to seek, employ

*Commonwealth* vs. *Fred P. Brown*, Mass. Adv. Sh. (1939) 517.

or patronize his business, service, advice or products"; with certain qualifications permitting acts that apparently would be prohibited by the general language quoted. . . .

The Commonwealth has an interest in attracting to the learned professions men of ability, capable of adorning them, and in enabling such men to survive in competition with others. It has an interest in spreading as widely as possible among its citizens the benefit of the professional services of the most competent practitioners as distinguished from those who barely possess the minimum qualifications for beginning practice at all. It has an interest in leaving its professional men free to improve their (A.S. p. 522) professional qualifications, without the necessity of devoting time and effort to the competitive pursuit of clients or patients. It has an interest, too, in freeing its citizens from the pressure of salesmanship in the formation of confidential professional relations.

The Legislature might find, and apparently did find in the case of dentists, that these public interests would be injuriously affected by free competition among practitioners without restraint as to methods. The Legislature might consider that, in general, practitioners of high character, deep learning and great skill are more conscious of vast areas of knowledge not yet explored than of the narrow fields in which they may have attained mastery; that they are restrained in speech, and careful that promise never outruns performance; and that as a class they are either incapable of advancing themselves by brazen self-laudation, or scorn resort to that means. The Legislature might conclude from human experience that practitioners of scant competence, like charlatans and demagogues, are likely to make up for want of genuine merit by an expert knowledge of mass psychology and great skill in appealing to the hopes and emotions of the uninformed and credulous. Advertising practitioners, as fast as discovery of their comparative incompetence causes the loss of clients or patients, for a long time can obtain new ones through skilful publicity. It may be that even with complete freedom in advertising, practitioners of unusual competence ultimately would succeed and others ultimately would reach the level of their merits; but in the meantime thousands if not millions of citizens might receive inferior service in the belief, induced by skilful advertising, that it was superior. Under the traditional method of professional advancement through the recommendation of satisfied clients or patients, progress may be slower, but it bears more relation to merit. The Legislature, taking the view which has been expressed, might conclude that the regulations made were for the protection of the public interests.

The restriction and even the prohibition of advertising by members of the learned professions constitute a lawful (A.S. p. 523) exercise of the police power, and not, as has been contended, a violation of constitutional provisions protecting liberty and property, or discriminatory legislation. . . .

The "learned profession of medicine" may well ponder these words, for they point out with unusual clarity and skill an aspect of our activity to which we pay too little attention, and they serve to remind us of our obligations to the Commonwealth.

But beyond the constitutionality of such legislation is the question of its propriety. Is it fitting that physicians should demean themselves by advocating a similar law for medicine? This, however, is not quite the right question. More appropriately we may ask, Has medicine already become so commercialized that a similar law is needed for us? Recent advertising of the teaching of "office tricks" to physicians may indicate the depth of commercialism to which certain members of the profession have degraded themselves, but the relatively few instances of such degradation are not of sufficient magnitude to demand legislation. The public still generally believes that commercial advertising by a physician probably stamps him as professionally unworthy. However, it is possible that the time will come when medicine may have to follow the example of dentistry in this matter. Whose is the responsibility to make such a law unnecessary for the medical profession?

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## EDUCATIONAL QUALIFICATIONS FOR PUBLIC-HEALTH SERVICE

THERE certainly is a growing demand that the public health be safeguarded in every possible way, particularly as an ever-increasing number of persons are entering the field as statisticians, sanitarians, public-health engineers and school-health educators. It is gratifying, therefore, to find that such a responsible organization as the American Public Health Association has, in a series of reports, defined the qualifications and educational training which is believed advisable for this group of public servants.

The Association does not intend to set up arbitrary standards which must be attained before an individual is regarded as a fit candidate for office. But the "professional educational qualifications specified . . . should be regarded as something to strive for or work toward."

The standards that the Association has set are admittedly high; but high they should be as the field of endeavor is one of great importance. This is particularly true, perhaps, in the field of school health. It is stated: "Scientifically and pedagogic-

ally sound health programs will be forth-coming only when teachers and supervisors of school health are adequately trained for this work."

We urge all those interested in these matters to obtain from the Book Service, American Public Health Association, 50 West 50th Street, New York City, copies of the five reports which are distributed free of charge.

## MASSACHUSETTS MEDICAL SOCIETY

### SECTION OF OBSTETRICS AND GYNECOLOGY*

RAYMOND S. TITUS, M.D., *Secretary*
330 Dartmouth Street
Boston

#### ACUTE INVERSION OF THE UTERUS

Mrs. G. B., a twenty-four-year-old para II, entered the hospital at term and in active labor on August 17, 1926. After four hours of labor she was delivered of a normal female child weighing 6 pounds, 11 ounces.

No family history was obtained. The patient had never been seriously ill and had never been operated on. Her first pregnancy, two years previously, resulted in a long labor and a high-forceps delivery. Catamenia began at twelve, were regular with a twenty-eight-day cycle and lasted five days without pain. Her last period was November 13, 1925, making her expected date of confinement August 20. The prenatal course during the present pregnancy had been entirely uneventful.

Following the birth of the child, the placenta did not come away easily; after several forceful attempts using the Credé method it did come away, although some of the membranes were retained. The cervix was closed down so that one could not get the hand into the uterus. Suddenly the patient collapsed and went into deep shock, and the pulse became thready and irregular. The lips were cyanosed, the respirations irregular, and the skin clammy and perspiring. The systolic blood pressure was 50, the diastolic unobtainable. Stimulative and shock treatment was instituted. The uterus felt hard, and the fundus was midway between the umbilicus and the symphysis. On feeling for the fundus, an indentation, round and smooth, was found in the body of the uterus. On either side of this indentation could be felt masses which were suggestive of the tubes and ovaries. A diagnosis of acute inversion of the uterus was made.

A laparotomy was performed and the fundus was found to be inverted in the body of the uterus. The tubes and ovaries on either side had been pulled into the inverted area. The patient was transfused with 500 cc. of citrated blood, Allis forceps were attached to the inverted fundus, and it was gradually replaced.

Following reinversion of the uterus, the patient's condition dramatically changed. Her color improved, the pulse assumed a much better quality, and the blood pressure immediately after the operation was 100 systolic, 80 diastolic. The abdominal wall was repaired in three layers. Warm saline packs were placed above the uterus, which immediately assumed a normal tone and contracted well.

The patient made an uneventful postoperative recovery and was discharged well to her home on the seventeenth postpartum day.

*Comment.* It is interesting that the symptom of shock — collapse — is noticed in cases of acute inversion of the uterus without unusual hemorrhage. It is also remarkable how quickly the symptoms of shock subside when the inversion is reduced.

This inversion was very likely influenced by the forceful attempts to remove the placenta by the Credé method. Apparently an attempt was made to enter the uterus before the diagnosis of inversion had been made, in order to obtain pieces of membranes that had not come away. For such a procedure there is very little excuse. However, since an attempt had been made and since the cervix had been found to have shut down, it is obvious that no further attempt should have been made to replace the inverted uterus by vaginal manipulation.

*A series of selected case histories by members of the section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the section.

## NEW HAMPSHIRE MEDICAL SOCIETY

GEORGE — BERT D. GEORGE, M.D., died at Rochester on May 21 at the age of sixty-six.

Dr. George was born in East Calais, Vermont, March 22, 1873, the son of Albert and Luceba (Dutton) George. He attended Goddard Seminary at Barre, Vermont, Tufts College and the University of Vermont College of Medicine.

He was an honorary member of the Strafford County Medical Society and a member of the New Hampshire Medical Society.

Besides his widow, he is survived by a son, Bert D. George, Jr., of Rochester, and a daughter, Mrs. Ruth Tarr, of Detroit, Michigan.

## MISCELLANY

### NOTES

At the annual meeting of the Board of Registration in Medicine in July, Dr. Francis R. Mahony, of Lowell, and Dr. Stephen Rushmore, of Boston, were respectively elected chairman and secretary for the ensuing year.

Dr. Richard Wagner, Viennese pediatrician, who has been engaged during the past year in research work on diabetes in childhood at the New England Deaconess Hospital under Dr. Elliott P. Joslin, has accepted an appointment on the faculty of Middlesex University School of Medicine. He is a medical graduate of the University of Vienna, where he served from 1924 to 1938 as assistant professor of pediatrics. Dr. Wagner worked in the department of biochemistry at Strassburg under the late Professor F. Hofmeister until 1914. After the War, he was assistant at the University Children's Hospital under the late Professor von Pirquet until 1931. He later was appointed consulting physician for newborn children in the obstetric clinics at the University of Vienna, and in 1933 he became the head of the outpatient clinic in the Kinderkranken Institut in Vienna. Dr. Wagner will engage in both didactic and clinical instruction at Middlesex University and Middlesex Hospital.

## CORRESPONDENCE

### ARTHUR T. LEGG

*To the Editor:* In the passing of Dr. Arthur T. Legg, the Massachusetts Department of Public Health suffered a severe loss. He was not only a consultant to the department whose opinions were highly valued, but an influential member of the medical profession, who by wise advice and counsel played a considerable part in maintaining the satisfactory relation between the profession and the Department of Public Health.

Dr. Legg served the Department of Public Health in two capacities. He was the clinic consultant for the Haverhill Crippled Children's Clinic, and the senior orthopedic surgeon at the Lakeville State Sanatorium.

His work in Services for Crippled Children was not confined to conducting one of the ten monthly state-wide clinics. Probably his most important and far-reaching influence was exerted as a member of the General Advisory Committee and of the Technical Advisory Committee of Services for Crippled Children. As a member of these committees his aid during the summer of 1936, when the Department of Public Health was laying the foundation of Services for Crippled Children and was obtaining the good will of the medical profession as the cornerstone of the structure, will never be forgotten by those who went to him for advice. As clinic consultant at Haverhill and as orthopedic surgeon at the Lakeville State Santorium, he will always be remembered by his colleagues and by the many children whom he served.

Dr. Legg was always willing to give his services. No matter what request was made of him he responded without a hint that he might have had other plans. He was not communicative; he never expressed an opinion unless he was sure it was really wanted. He was most modest; one always felt that he had no idea how he was revered by his colleagues. His judgment in respect to treatment was superb. He was ready to take up with new methods, but only if they had been proved to be efficacious. He was conservative at all times.

The members of the staff of the Massachusetts Department of Public Health, and especially those who worked with Dr. Legg and knew him personally, all feel that they have suffered an irreparable loss.

PAUL J. JAKMAUH, M.D.,
*Commissioner of Public Health.*

State House,
Boston.

### MIDDLESEX UNIVERSITY

*To the Editor:* May I reply to certain statements contained in your editorial in comment upon the Annual Oration delivered by Dr. Elliott P. Joslin?

Middlesex University has provided the Massachusetts Approving Authority with a financial statement of receipts and expenditures, and a balance sheet, prepared at considerable expense by a certified public accountant. It has welcomed the members of the Approving Authority on several visits, and has answered every question that has been asked by them on these occasions.

Your editorial further states: "As to the financial resources of Middlesex, requests for information at the State House have shown that there are no published statements relating to this subject at the present time." It is neither a legal requirement nor a prevailing custom for educational institutions to file statements as to their financial resources at the State House, and it is unfair to imply that we are departing from ordinary procedure in this respect. Does Harvard, Boston University, Tufts or any other Massachusetts college file such financial statements?

We read with pleasure in your editorial that "if Middlesex shows a determination to meet the requirements for an approved school, the sympathy of the Massachusetts Medical Society will be cordial to the highest degree." We submit that we are showing not only a determination, but so far as is in our power, the ability to meet these requirements; but we need more than sympathy from the Society, we need friendship and cooperation.

We have erected a plant that even our severest critics admit is superb. We have made many outstanding additions to our medical faculty during the past year that you have felt were worthy of mention in the *Journal*. We have, for almost twenty years, voluntarily adhered to the entrance requirements of the American Medical Association. We have not accumulated or acquired an endowment fund, because we are not magicians. We are working hard on the problem of clinics, in the solution of which we would gratefully welcome the assistance of the Society.

We deeply respect the sincerity of Dr. Joslin, and intend to be guided by his advice. We think he is unselfishly trying to help in a difficult situation.

C. RUGGLES SMITH, *President.*

P.S. — The receipt of our financial statement was acknowledged by Dr. Rushmore on July 14. I wonder if this was not early enough for a correction to have been made in the editorial of July 20.

C. R. S.

Waltham, Massachusetts.

## REPORTS OF MEETINGS

### NU SIGMA NU LECTURE

On April 25, the Harvard Chapter of Nu Sigma Nu presented Dr. Lewellys F. Barker, visiting physician at the Johns Hopkins Hospital and professor of medicine,

emeritus, at Johns Hopkins University School of Medicine. The formidable title of his talk, "Hormones and Vitamins," indicates the magnitude of the speaker's undertaking but gives no clue to the unmistakable success he achieved in one too short hour. Since discussion of any one aspect of the subject was impossible in such a brief talk, Dr. Barker chose to survey the high points of the entire field, with its recent trends and advances.

The hormones, as is well known, are "chemical messengers" elaborated by the glands of internal secretion and transported by the blood stream throughout the organism, where they act at some distance from their source. Many of them have been isolated and crystallized in pure chemical form, whereas others have been synthetically prepared. On the other hand, some so-called hormones are merely partially purified fractions of glandular extracts, and it is conclusions drawn from experiments with this type of substance that are widely quoted and often grossly inaccurate and unreliable.

Dr. Barker is one of that legion of endocrinologists who considers the pituitary the "master gland," although it is acted on to a lesser extent by the other endocrine glands — a reciprocal arrangement. The anterior lobe of this organ is the most important part from the hormonal standpoint, elaborating the various tropic hormones which stimulate the other glands, and exerting a controlling effect on fat and carbohydrate metabolism. The mother substance originally obtained from the gland is now known to be a complicated protein containing many different hormones, most of which have been prepared, so far, as only relatively pure fractions. Some idea of the chaos which now prevails can be gathered from a consideration of the growth hormone. It is now questioned as to whether there may not be more than one such substance, while Riddle considers the possibility of its being a combination of adrenotropic and thyrotropic hormones rather than a separate entity. However, until pure crystalline substances are used for these investigations, incontrovertible conclusions are not possible.

The gonadotropic hormone of the anterior pituitary acts on the ovary in the female to produce ovulation — through the follicle-stimulating hormone (F.S.H.) — and later luteinization — through the lutein-stimulating hormone (L.S.H.). These substances are similar to, but not identical with, the prolans found in pregnancy and produced by the placenta. Since they were originally considered identical, one nomenclature still refers to F.S.H. and L.S.H. as prolan A and B respectively. Since both male and female pituitary glands are alike, it is not surprising to find that these tropic substances are also found in the male. F.S.H. acts on the seminiferous tubules to bring about spermatogenesis, and may form estrin. L.S.H. exerts its effect on the interstitial cells of the testes to promote the growth of the secondary sex characteristics and is responsible for the formation of the androgens.

In regard to the thyrotropic hormone, there has recently arisen some doubt as to the specificity of the pituitary at the site of stimulation. Although an increase of this substance does cause overactivity of the thyroid gland with all the clinical signs and an increased basal metabolic rate, the latter can function in the hypophysectomized animal — albeit at a somewhat lower level. Some recent work seems to indicate that a compound functionally similar to thyrotropic hormone may be extracted from the ovary and adrenal gland.

The corticotropic hormone is responsible for stimulation of the adrenal cortex and causes various manifestations depending on the time of life it appears. Overactivity in utero results in pseudohermaphrodism in women, due to the tendency for masculinization in an incompletely differentiated fetus. In infancy and childhood, girls exhibit precocious puberty and menstruation followed by amenorrhea and virulism, whereas boys develop early and marked maleness. After puberty, women tend to assume male characteristics, and rarely men have a tendency to feminism.

The pancreatotropic hormone, if such an entity really exists, is antagonistic to the corticotropic factor and causes stimulation of the islands of Langerhans, with resultant decrease of blood sugar.

There is, however, a diabetogenic hormone, closely associated with the corticotropic factor, which is directly antagonistic to the pancreas. While the latter fundamentally tends to burn sugar, the former exerts a glycostatic effect.

Another anterior pituitary factor about the existence of which some controversy still rages is the parathyrotropic hormone, which allegedly controls the blood-calcium level through the parathyroid glands.

Finally, there is the lactogenic hormone, a secretogogue which will always function after the breast has been primed by estrin and progestin, even in the male. This latter action merely makes the necessary suitable substrate required by the activating hormone.

The intermediate lobe of the pituitary does not seem to play any significant role in human beings, while the posterior lobe is of nervous-tissue origin and is associated with vasomotor and smooth-muscle control, as well as with water metabolism.

Some of the more important clinical manifestations of anterior pituitary dysfunction are: gigantism and acromegaly, supposedly due to an increase of acidophilic cells which allegedly contain all the tropic elements except the gonadotropic hormones; Fröhlich's syndrome, the hyposexual adipose person who often shows associated suprasellar cysts; Simmonds's disease, in which there is hypofunction of all the pituitary elements and secondarily of the other endocrine glands. The Cushing syndrome of virulism is probably always dependent on adrenal overactivity, due either to primary disease of that gland or to pituitary stimulation through the corticotropic hormone, rather than being the result of a basophilic adenoma of the hypophysis.

The thyroid gland is the site of manufacture and storage of thyroglobulin which may be separated into thyroxin, which is only slightly less potent than the complete hormone, and di-iodotyrosine, which is essentially inactive. The clinical manifestations of imbalance of this regulator of general cellular metabolism are Graves's disease and myxedema, with their characteristic signs and symptoms. The striking effect of substitution therapy in the latter condition is one of the most gratifying in medicine.

The parathyroid glands with their product, parathormone, are among the more recent additions to the group. Ablation experiments and subsequent tetany were an accompaniment of many early thyroidectomies, and unavoidable injury or removal is still a constant source of consternation to the surgeon, particularly during re-operations. More recently, treatment with purified parathormone has altered the course of both surgical and idiopathic tetany in remarkable fashion. Oversecretion of the parathyroid hormone, due either to hyperplasia or to functioning adenomas of the glands, leads to the elevation of blood calcium at the expense of the bony storehouse. This consequently causes cystic disease of the bones, with fractures, and calcium deposits in the other tissues, particularly the kidneys. It is now known, however, that neither of these more severe and obvious complications

may be necessary to diagnose hyperparathyroidism. The increased blood calcium leads to decreased muscle tone, particularly manifested in the gastrointestinal tract by poor appetite and bowel habits. In such suspected cases, careful blood-chemistry studies may furnish the necessary proof of the underlying disease. In such blood-calcium determinations, however, one must consider the plasma protein value, for the calcium measured is partly combined with protein and a normal total calcium may really signify an elevated level if a low protein content is present. Careful surgical treatment is gradually proving more successful in the treatment of such cases of hyperparathyroidism.

The active principle of the adrenal cortex has not yet been obtained in a pure state, yet many important observations have been made concerning this gland. The functions of the hormone have been noted above under the corticotropic hormone of the pituitary, which merely stimulates the cortex to elaborate its specific hormone. On the other hand, epinephrine, the principal product of the adrenal medulla, has been purified and studied for some time. It is fairly well established that this substance is closely allied with the functions of the sympathetic nervous system. Overactivity of this portion of the gland leads to paroxysmal hypertension, while hypofunction results in the classic syndrome of Addison's disease in which the cortex is also involved. Treatment of this latter condition has received notable impetus from the introduction of cortin, which has been employed with temporary success either with or without the addition of epinephrine.

Currently, the field of endocrinology is exhibiting most activity in regard to the intriguing sex hormones. In women, two distinct hormones were primarily distinguished, one from the ripened follicle and the other from the corpus luteum. Further improvement in methods of isolation and purification has enabled one to identify seven estrones in nature, but still only one progesterone. The former have been isolated from the ovary, from the urine of pregnant women and mares and from the urine of stallions. Until synthesis became possible, this latter source was, surprisingly, the richest. Progesterone has been obtained from the ovaries, placenta and pregnant urine and is synthesized as pregnandiol. In men, on the other hand, there have been four hormones isolated and chemically identified. These have the generic name of androgens, testosterone being the most powerful one physiologically. The latter is now being used medically for many intractable glandular problems, including benign prostatic hypertrophy.

The final gland of internal secretion discussed was the pancreas with its well-known product, insulin. This has finally been synthesized in crystalline form, and is found to consist of a long chain of amino-acids. Besides the well-known effects of the various forms of insulin used so successfully in treating diabetes mellitus, Dr. Barker and others have used this hormone, particularly protamine-zinc insulin, for undernutrition, with striking results.

The surgeon has also been manifesting unwonted enthusiasm in the problem of endocrinology and has successfully treated many cases due to endocrine dysfunction. Dr. Barker mentioned particularly the spectacular results that follow extirpation of paragangliomas in paroxysmal hypertension, islet tumors of the pancreas in hypoglycemia, hyperfunctioning parathyroid glands in cystic disease of bones and renal calculi, and arrhenoblastomas and adrenocortical tumors in women exhibiting the so-called Cushing syndrome.

Dr. Barker, in a brief review of the outstanding events in the past history of the vitamins, cited the observation of Hopkins in 1912, who stressed the importance of accessory food factors besides fats, carbohydrates and proteins. One of the most amazing bits of clear armchair philosophy in medical history, deduced purely from a perusal of the literature, was the recognition by Funk of the underlying causes of beriberi, scurvy, rickets and pellagra, and the naming of the vital factors involved as "vitamins." Then followed years of careful and painstaking experiments with diets lacking in various essential foods and the isolation and even synthesis of most of the substances now known as vitamins.

Vitamin A, the antixerotic factor, has been isolated and synthesized. The principal precursor in nature is $\beta$-carotene, which can be split into two molecules of the pure vitamin. This is one of the fat-soluble vitamins, and the bile acids are a prerequisite for its absorption via the gastrointestinal tract. Most abundant sources of this accessory factor are butter, fat, egg-yolk, cod-liver oil and yellow vegetables. The necessary intake for the adult is approximately 3000 to 3800 international units per day. The commonest manifestations in persons lacking vitamin A are xerophthalmia, especially in infancy, and essential hemeralopia or night-blindness. This latter condition is probably much more prevalent than formerly supposed, and its importance in contributing to automobile accidents is gradually being recognized.

Vitamin $B_1$, the anti-beriberi factor, has been isolated as thiamin chloride and synthesized. It is a water-soluble substance which is easily absorbed, stored to only an insignificant degree, and excreted in the urine. Principal sources of this compound are cereals, yeast, milk, eggs and liver. Approximately 200 to 300 units per day are necessary in the adult. Although beriberi is the common form of thiamin deficiency seen in the Orient, the usual clinical manifestation seen in this country is alcoholic polyneuritis, which is now recognized as a pure deficiency disease rather than a toxic condition. Such addicts may be relieved by the intramuscular injection of 200 to 300 units of the vitamin per day, even though the alcohol intake is continued.

Vitamin $B_2$ has recently been subdivided into two isolated and synthesizable substances, riboflavin and nicotinic acid. Though the role of the former has not been thoroughly determined, the latter has been established as the pellagra-preventing vitamin. The outstanding manifestations of dermatitis, diarrhea and dementia are explained by the deficient diet prevalent in the South, consisting of meat (salt pork), meal and molasses. There are many subclinical cases in the endemic areas of the poorer southern states, and pellagrins constitute a large percentage of the inmates of southern psychiatric hospitals. Favorable reports of the treatment with nicotinic acid have been well substantiated.

Water-soluble vitamin C was crystallized in 1928 as hexuronic acid. This compound was later called *l*-ascorbic acid and is now officially named cevitamic acid. This vitamin, the presence of which in citrus fruits was relied on empirically for years by English sailors, is the antiscorbutic factor. Its importance now lies largely in the danger of deficiency in artificially fed infants. Dr. Barker emphasized the newer concept that Barlow's disease, or infantile scurvy, is essentially similar to the disease process in the adult except for the different manifestations brought about by growth. The disease affects the bones in infants but never in adults. Diagnosis in doubtful cases is possible by the tourniquet test or, more recently, by the determination of the level of the plasma cevitamic acid.

The second fat-soluble substance, vitamin D, is the regulator of calcium metabolism, and is gradually being divided into a number of substances. At present, there are at least ten known forms, only two of which are practically important. One, of vegetable origin, is activated ergosterol, in its pure form known as calciferol, and named viosterol officially; the other is activiated 7-dihydrocholesterol, of animal origin, which develops in the skin under the action of ultraviolet rays. Certain of the other forms of vitamin D, although capable of raising the blood calcium in rickets, are not efficacious in its treatment. The commonest disease brought on by lack of this vital food factor is rickets in the growing child. This may be due to improper food, lack of sunlight or poor absorptive powers. If rickets is present, 1200 units per day should be administered, but serum-calcium determinations should be carried out twice weekly and medication stopped if the level reaches 12 mg. per 100 cc. Osteomalacia in the adult is essentially adult rickets, but is relatively rare except in war-ridden countries.

Vitamin E is an alcoholic compound which has been proved to be important as an antidote for habitual abortion in cattle, but whose necessity for human fertility is still an open question.

Vitamin K is a fat-soluble, thermostable compound which now appears to be a constituent of prothrombin. Bile salts are a necessity for its absorption from the gastrointestinal tract, so that they should be administered along with the vitamin in cases where there is any question of biliary obstruction. Adequate increases of the prothrombin level of the blood have been constantly demonstrated by the use of this vitamin, alone or in combination with bile salts when necessary.

Vitamin P, which is now identified as citrine, has been proved to be useful in the treatment of certain cases of purpura that have been resistant to vitamin C therapy.

Several other vitamins were enumerated by Dr. Barker as being of some use in various species of animals but not for man.

In conclusion, Dr. Barker deplored the overexploitation of the vitamins and their indiscriminate therapeutic use without proper preliminary studies and diagnoses. Further detrimental facts in the present situation are the extravagant claims of commercial companies in regard to the vitamin content of their products and their relative merits. This leads to ill-advised self-treatment by people who probably have no vitamin deficiency. The normal adult on a suitable diet is in no danger of avitaminosis. There is but little danger from such treatment with vitamins, for only excess of vitamin D results in any dangerous condition as a result of hypervitaminosis. There are certain extraordinary conditions, such as pregnancy, however, in which even the adult needs additional vitamin factors. On the other hand, restrictions of diet (as in peptic ulcer) should not be allowed to include the vitamins, which should be administered parenterally in any instance where the oral route is inadvisable or impossible. Finally, it is to be hoped that with the increasing number of vitamins chemically identified, specific names will be universally applied.

## NOTICES

### TUMOR CLINIC, BOSTON DISPENSARY

Each Tuesday and Friday morning, 10:00 to 12:30, there is a meeting of the Tumor Clinic of the Boston Dispensary, a unit of the New England Medical Center. Neoplasms of various sorts are seen and discussed and, when there is an indication, are treated with radium of high-voltage x-ray. Physicians are invited to visit this clinic. They may bring patients for aid in diagnosis or may refer patients to the clinic following which a report will be returned to the referring physician. A limited number of beds are available for diagnostic study and for treatment.

## SOCIETY MEETINGS AND CONFERENCES

### CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, AUGUST 7

TUESDAY, AUGUST 8

*10 a. m.–12:30 p. m. Boston Dispensary tumor clinic.

FRIDAY, AUGUST 11

*10 a. m.–12:30 p. m. Boston Dispensary tumor clinic.

SATURDAY, AUGUST 12

*10 a. m.–12 m. Staff rounds of the Peter Bent Brigham Hospital. Conducted by Dr. Robert T. Monroe.

*Open to the medical profession.

AUGUST 30–SEPTEMBER 2 — Seminar in Physical Therapy. Page 857, issue of May 18.

SEPTEMBER — Boston Psychoanalytic Institute. Page 450, issue of September 22, 1938.

SEPTEMBER 4–6 — Institute for the Consideration of the Blood and Blood-Forming Organs. Page 941, issue of June 1.

SEPTEMBER 4–6 — Institute at University of Wisconsin Medical School. Page 160, issue of July 27.

SEPTEMBER 5–8 — American Congress of Physical Therapy. Page 857, issue of May 18.

SEPTEMBER 11–15 — American Congress on Obstetrics and Gynecology. Page 938, issue of December 8.

SEPTEMBER 14–16 — Biological Photographic Association. Page 941, issue of June 1.

SEPTEMBER 15–28 — Pan-Pacific Surgical Association. Page 863, issue of November 24.

OCTOBER 23–NOVEMBER 3 — New York Academy of Medicine. Page 977, issue of June 8.

FALL, 1939 — Temperature Symposium. Page 218, issue of February 2.

DECEMBER 2 — American Board of Obstetrics and Gynecology. Page 1019, issue of June 15.

JANUARY 6, JUNE 8–11, 1940 — American Board of Obstetrics and Gynecology. Page 160, issue of July 27.

MARCH 7–9, 1940 — The New England Hospital Association. Hotel Statler, Boston.

MAY 14, 1940 — Pharmacopoeial Convention. Page 894, issue of May 25.

JUNE 7–9, 1940 — American Board of Obstetrics and Gynecology. Page 1019, issue of June 15.

## BOOKS RECEIVED FOR REVIEW

*Headache and Head Pains: A ready reference manual for physicians.* Walton F. Dutton. 301 pp. Philadelphia: F. A. Davis Co., 1939. $4.50.

*Proctology for the General Practitioner.* Frederick C. Smith. 386 pp. Philadelphia: F. A. Davis Co., 1939. $4.50.

*Diseases of the Mouth and Their Treatment: A textbook for practitioners and students of medicine and dentistry.* Hermann Prinz and Sigmund S. Greenbaum. Second edition. 670 pp. Philadelphia: Lea & Febiger, 1939. $9.00.

*Cancer of the Colon and Rectum: Its diagnosis and treatment.* Fred W. Rankin and A. Stephens Graham. 358 pp. Springfield, Illinois, and Baltimore: Charles C Thomas, 1939. $5.50.

*Le Temps de Réaction: Techniques applications cliniques.* Paul Michon. 98 pp. Paris: Masson et Cie, 1939. 22 Fr. fr.

*Traitement de la Blennorragie par le Sulfamide, une Sulfone et Leurs Dérivés.* M. Palazzoli and F. Nitti. 195 pp. Paris: Masson et Cie, 1939. 35 Fr. fr.

*Les Embolies Cérébrales: Études de pathologie expérimentale sur les embolies solide et gazeuse du cerveau.*

Maurice Villaret and René Cachera. 133 pp. Paris: Masson et Cie, 1939. 32 Fr. fr.

*Fever Therapy Technique.* Jack R. Ewalt, Ernest H. Parsons, Stafford L. Warren and Stafford L. Osborne. 161 pp. New York and London: Paul B. Hoeber, Inc., 1939. $2.50.

*A Source Book in Geology.* Kirtley F. Mather and Shirley L. Mason. 702 pp. New York and London: McGraw–Hill Book Co., Inc., 1939. $5.00.

*Roentgen Technique.* Clyde McNeill. 315 pp. Springfield, Illinois, and Baltimore: Charles C Thomas, 1939. $5.00.

## BOOK REVIEWS

*The Massachusetts General Hospital: Its development, 1900–1935.* Frederic A. Washburn. 643 pp. Boston: Houghton Mifflin Co., 1939. $4.00.

At the breakfast-table one morning, the professor remarked that after a man begins to attack the State House, when he gets bitter about the Frog-Pond, — and he might have added, when he thinks he can turn up his nose at the Massachusetts General Hospital, — you may be sure there is not much left of him. Because, as every Boston Brahmin agrees, no matter what happens the State House will always have its cupola fresh gilded, the Frog-Pond its fountain that glorifies that humble sheet with a fine display of provincial rainbows, and the Massachusetts General Hospital will go serenely about its business of giving ever better care to the sick, fighting against the cause of disease and pain, and training doctors and nurses.

If one merely is interested in a historical document dealing with the recent development of a first-class, modern hospital, one will read Dr. Washburn's book enjoyably. The author has meticulously traced the career of the Massachusetts General Hospital from 1900 to 1935, from the days when it was a small hospital of 260 beds, with an outpatient department having an average daily attendance of only 298 patients, and when its annual expense was a paltry $204,896, up to the time when there were 765 beds, when the outpatient department cared for 988 patients a day and when the annual expense of the institution was $2,176,477.

If one happens to admire the Massachusetts General Hospital, and particularly if one happens ever to have belonged to it in any capacity, he will wish to own this book, to study it, to add it to his pictures of the hospital and to all the other things he has collected that go to remind him so often of what brave days those were when he was a house pupil.

Not a great many years ago, Harvey Cushing gave an Ether Day address there. He called it, "The Personality of a Hospital," and he showed how vitally alive a good hospital must be. He ended by saying that every hospital recognizes more or less clearly certain set obligations. What help or hinder most in their fulfillment are the crystallized traditions which give an institution its particular individuality. In the development of this quality, countless people contribute — those whose charity has given comfort and peace of mind, as well as those whose professional skill has brought physical well-being to the maimed and sick; those who have brought the greatest sympathy and understanding to the problems of the young people there to learn; those who may never have come in special contact either with patients or students but who have applied themselves to the forwarding of knowledge; those who have managed the business affairs of the hospital; those, too, who have made the beds, kept the books, answered the telephone, cooked the food, done the wash, stoked the fires and scrubbed the floors.

Dr. Washburn gives all these countless people full credit for their share in making the personality of the Massachusetts General Hospital what it is today. He has painted a fine portrait of a respected New England hospital, ploughing ahead fearlessly, living up to worthwhile traditions and continuously meeting the future so that as the future has become the present or faded into the past, the character of the institution has never grown old but has remained perpetually young and ardent.

*End-Results in the Treatment of Gastric Cancer: An analytical study and statistical survey of sixty years of surgical treatment.* Edward M. Livingston and George T. Pack. 179 pp. New York and London: Paul B. Hoeber, Inc., 1939. $3.00.

In the introduction to this outstanding book, Bowman Crowell states that it constitutes a third milepost on the road of therapy of gastric cancer, the first two being the establishment of resection by Billroth and Welch's classical paper on the natural history of the disease. With meticulous care every report in the literature of the results of surgical treatment of gastric carcinoma has been reviewed and analyzed. This constitutes about 14,000 gastrectomies. The book crystallizes the present status of treatment of this disease, which, as the authors vividly point out, claims almost three times as many victims every year in this country as the number killed during the World War.

There are about 60 pages of discussion and 95 pages of tables and graphs. Both sections contain accurately evaluated data that cannot be adequately discussed in this review. However, certain of the authors' conclusions stand out as of unusual importance. For example, they show beyond any question of doubt that gastric cancer is represented by two different types of disease: the first when discovered is beyond hope of cure by any method and the second can be successfully treated by gastric resection. In this second group those patients who are treated in well-organized institutions stand a one to five chance of ten-year survival, while those who are attended by "casual" surgeons have a much poorer prognosis. They emphasize that every patient that does not have obvious metastases should be operated on and that the more operations, the greater the number of cures. The note throughout is one of optimism, and the steady improvement in treatment since the time of Billroth is well brought out. Gastroenterostomy is condemned as offering little or nothing to the patient and carrying a mortality at least as great as resection itself.

The suggestion that a community or hospital "index" — the ratio of the number of gastrectomies to the number of cases seen — be established is interesting. If this is low, the number of cures is also low, and presumably the treatment, medical or surgical, in that community is inefficient. As the authors show, there are so-called "cancer clinics" in which no successful resections have been performed for many years. A minimum standard for such an index would be a worthwhile addition to the requirements for approval of a hospital by the American College of Surgeons.

The book should be studied not only by every surgeon but by every physician who comes in contact with this common and tragic disease, because it is clearly shown that the key to successful treatment is the local physician who carries out early diagnostic measures.

*Angina Pectoris: Nerve pathways, physiology, symptomatology, and treatment.* Heyman R. Miller. 275 pp. Baltimore: The Williams & Wilkins Co., 1939. $3.25.

The author states that this volume grew out of an original desire to present a series of carefully drawn anatomical charts of the cardiac innervation. The text was developed later to explain the illustrations. It is divided into four main sections. The first section covers the concepts and clinical features of angina pectoris, the second discusses the anatomic pathways for the transmission of cardioaortic pain; the third covers the distribution and simulation of anginal pain and the treatment of angina pectoris; and the final section discusses the physiology and psychology of pain. The drawings, themselves, are technically very good, but it seems to this reviewer that there are too many of them and that a few larger drawings would have served the purpose better. The general scheme consists of a series of progressively more complicated illustrations of the nervous pathways involved in cardioaortic pain, and the drawings are of necessity very detailed. In the main, they appear to be accurate, but in spite of their complexity they are intentionally schematic and, therefore, are of little value for a practical surgical approach to the problem. Furthermore, the importance of the direct thoracic cardiac nerve, which plays so large a role in the surgical treatment of cardiac pain, is not sufficiently emphasized.

The text contains a useful survey of the literature and many interesting points for those particularly interested in cardiovascular problems. The discussion of treatment has been extended to include congestive heart failure, and there is a large amount of space given over to drug therapy. A few unfortunate errors have crept in, such as the recommendation for administering 0.1 gm. of dry digitalis leaf per pound of body weight in treating paroxysmal auricular fibrillation, a dose which is ten times larger than was intended. The author considers that angina pectoris represents a powerful disturbance of the entire autonomic nervous system and discusses in detail the features which are expressions of the activity of the sympathetic and vagal systems. There is a good review of the conditions which simulate angina pectoris, but the consideration of the clinical features of angina pectoris based on coronary disease does not differentiate clearly enough the syndrome of the simple anginal attack and that of acute cardiac infarction. He considers that the characteristic features of an attack of angina pectoris are "pain of inordinate magnitude, marked psychic disturbances, difficult to describe, and shock." While this is true of cardiac infarction, it is certainly not true of the vast majority of attacks of angina pectoris of the milder type which the physician should learn to recognize long before they have reached the stage of extensive acute coronary closure.

The book appears to be rather too confusing for students, helpful for a man in general practice who wishes to understand the anatomy of the nervous pathways, and useful to a specialist, mainly from its bibliographical material.

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*Failure of the Circulation.* Tinsley R. Harrison. 502 pp. Baltimore: The Williams & Wilkins Co., 1939. $4.50.

Harrison presents a second edition of his important book on failure of the circulation, having added comprehensive discussions of cardiac syncope and cardiac collapse, and moved the chapters on angina pectoris from the last part of the book to the first major section which deals with forward failure.

The author's chief contributions still concern congestive heart failure, the differentiation of peripheral circulatory failure and cardiac failure, and in Section III, the simultaneous occurrence of forward and backward failure. They are presented in detail in clear and interesting writing, valuable alike for the investigator and practitioner. One might question, however, the inclusion of angina pectoris, sudden death and general circulatory disturbances without failure in a book of this sort.

In the preface of this edition the author writes: "Speaking broadly, and granting certain notable exceptions, we have, as yet, relatively few useful methods of treating successfully the causes of heart disease. What we treat, and this can be done with more than a fair degree of success, is their results, which are certain disturbances of function. . . . Regardless of etiology each of these major syndromes has certain definite prognostic and therapeutic implications." In this way, he returns largely to the viewpoint of Mackenzie concerning the great significance of functional disorders of the circulation. The reviewer believes, however, that we should not overlook the fact that it is of great, perhaps greater, importance for the doctor to recognize the presence of heart disease or heart strain early and so to advise as to aid in the postponement or even in the prevention of myocardial or coronary failure. Such preventive medicine by the physician at large can be definitely practiced if he will go about it, even though there is a great deal still to learn concerning the causes of heart disease; too often all the doctor does is to wait for the end results, in the form of failure, before he acts.

For the analysis, recognition and treatment of peripheral circulatory failure and of the end results of heart disease this volume can be heartily recommended.

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*Whence? Whither? Why? A new philosophy based on the physical sciences.* Augusta Gaskell. 312 pp. New York: G. P. Putnam's Sons, 1939. $2.50.

Man goes through many soul-searching experiences. As a result, sooner or later, he feels impelled to come to grips with the great questions: What is life? What is God? What is death? The introduction, written by Professor F. K. Richtmyer, professor of physics at Cornell University and dean of the Graduate School, gives an indication of the author's well-earned right to consider this large field by stating, with respect to the physical sciences, that "Mrs. Gaskell's manuscript shows that she possesses a broad and correct grasp of the essential facts and theories requisite for her purpose."

The following excerpts illustrate the point of view of the author: "For if [as theory says] the organism is a dual system, and life, or the Z-system, is an intra-atomic quantity, then the cessation of the activities of the system [the death of the organism] must mean the expulsion, or separation, of the quantity life, since the elementary units which [in peculiar organization] constitute the Z-system, life, cannot be disposed of in any other way." Again: "If we accept Dr. Loeb's method of interpreting conduct in terms of tropisms as valid, and we may do so provisionally, and apply it to the interpretation of religion [i.e., of the religious sense], we must then define religion, this distinguishing characteristic of man, as theotropism." Still further: "Man is not only a metamorphic organism, he is in an abnormal state. No other conclusion is possible than the conclusion that the earth's organic evolution is a marred one, and that man has had a 'fall.'"

One who reads this book carefully will find ample room for agreement, for critical discussion and for total disagreement with many thoughts expressed by the author.

The value of the book, however, will always be the sincerity and the singleness of purpose with which the author approached her subject.

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*Secretarial Efficiency.* Frances A. Faunce. With the collaboration of Frederick G. Nichols. First edition. 601 pp. New York: Whittlesey House, 1939. $3.50.

This is a book a doctor would like to have his secretary read, and indeed, a doctor would pick up many points of good management from it. To be sure it is not a book written just for the secretaries of doctors, but it does contain specific, appropriate and understanding advice for such secretaries and is therefore worth while. The reviewer is happy to recommend it.

The authors foresee what a doctor wants. They develop the need for a doctor's secretary to be interested in patients and to be willing to help in the chaperoning of patients, in caring for them in the office and in readjusting appointments to meet both the needs of the physician and the patient. In many places in the book the thesis is driven home that to work for a doctor demands more than the qualification of a simple stenographer; there must be an interest in the job, accuracy and a "heart."

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*Clinical Biochemistry.* Abraham Cantarow and Max Trumper. Second edition, revised. 666 pp. Philadelphia and London: W. B. Saunders Co., 1939. $6.00.

In the second edition of this well-known work, according to the authors' statement in the preface, practically every chapter that deals with the following subjects has been revised: influence of the anterior hypophysis, adrenal cortex and vitamin $B_1$ on carbohydrate metabolism; serum phosphatase activity; uremia; water balance, edema and dehydration; iodine metabolism; sodium and potassium metabolism; iron metabolism; magnesium metabolism; chemistry of bile; practical biochemical aspects of vitamin deficiency. In general, the method of presentation adopted in the first edition has been adhered to, with the exception of the inclusion of a selected bibliography of critical reviews and some source material.

A volume such as this, which has, no doubt, had an extensive sale in its first edition, hardly needs a review. There is some repetition, but on the whole the information given is easily available. The printing is clear, there are but few mistakes, and the subjects are well indexed.

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*Fever and Psychoses: A study of the literature and current opinion on the effects of fever on certain psychoses and epilepsy.* Gladys C. Terry. 167 pp. New York and London: Paul B. Hoeber, Inc., 1939. $3.00.

It has been well known for many years that fever treatment is effective in the treatment of general paresis. A similar type of treatment which might affect other psychoses has long been in the minds of many psychiatrists. The reports have been scattered in the literature, and we are indebted to the author of this monograph for bringing the literature together in compact form, in spite of the fact that the book lacks any report of personal experiences. The author, moreover, fails to evaluate the literature in a chapter which might summarize the whole review. Although the facts are presented, there is little or no attempt to interpret them. The book would have been of more value had the author written in collaboration with one of the senior neurologists of the Neurological Institute of New York, where the work originated. The book, moreover, lacks an index.

*Clinical Obstetrics.* A. Lakshmanaswami Mudaliar. 819 pp. Edinburgh and London: Oliver & Boyd, 1938. 27s.

This volume by the professor of obstetrics at the Madras Medical College in India covers in very satisfactory form the usual subjects in a book on obstetrics. It has, of course, the English point of view and the English treatment of the various conditions and complications of pregnancy. We here in America do not subscribe to all that is included in the text. However, the advice and treatment given are for the most part sound, and do not diverge too greatly from American teachings. The chapter on tropical diseases is interesting and is of increasing importance. The material given in the chapters on operative obstetrics does not correspond to the best approved technic in America at the present time.

The book is well illustrated and well printed. It will prove valuable as a book of reference showing foreign methods of procedure.

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*Hypertension and Nephritis.* Arthur M. Fishberg. Fourth edition, thoroughly revised. 779 pp. Philadelphia: Lea & Febiger, 1939. $7.50.

Five years have passed since the publication of the third edition of this book. The present edition brings the text as nearly up to date as could be desired, and will maintain its reputation as the best interpretive summary of the literature of nephritis and hypertension in English. The disinclination of the author to ride his own hobbies to the exclusion of other men's is, to the special student of the subject, a most admirable virtue. If while maintaining his impartial comprehensiveness, he devoted more attention to a simple and thorough exposition of the relatively few diagnostic and therapeutic procedures which he finds of practical value, his book would be more useful to the practitioner.

It continues to be a cause for admiration on the part of the reviewer that since the early monograph of Robert Christison a hundred years ago, it has regularly been possible for men in every generation to write really good books of eight hundred pages on a subject we know so little about as hypertension and nephritis.

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*Classified and Annotated Bibliography of Sir William Osler's Publications.* Edited by Maude E. Abbott. Second edition, revised and indexed. 163 pp. Montreal: The Medical Museum, McGill University, 1939. $2.25.

This revised bibliography is welcome. The first issue was begun in 1920 and published in 1926. The new issue adds an index and contains some minor corrections. It has become the standard bibliography, noted for its completeness and accuracy. Unfortunately, it has not been possible to incorporate the addenda into the text, and a section on "Writings about Osler," in the 1926 issue, has been omitted. It is hoped that the industrious compiler of this book will now set to work to complete this missing section. She, above all others, could do it best. In the meantime, we give thanks for this revised edition of the bibliography and extend our congratulations and best wishes to the devoted Osler disciple, Maude E. Abbott. Dr. Jacobs, Osler's contemporary in Baltimore, has written a graceful foreword, giving the history of the Vernon plaque of Sir William Osler.